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THE PANEL OF CONSULTANTS ON VOCATIONAL EDUCATION, APPOINTED IN OCTOBER 1961 TO REVIEW AND EVALUATE EXISTING NATIONAL VOCATIONAL EDUCATION LEGISLATION AND TO MAKE RECOMMENDATIONS FOR IMPROVING AND REDIRECTING VOCATIONAL EDUCATION, SUBMITTED THIS REPORT IN NOVEMBER 1962. A MAJOR CONCERN WAS TO STUDY THE STRENGTHS AND LIMITATIONS OF THE LOCAL-STATE-FEDERAL PROGRAMS, INCLUDING THE IMPLICATIONS OF AUTOMATION, TECHNOLOGICAL ADVANCE, POPULATION MOBILITY, DISCRIMINATION, URBANIZATION, AND PROGRAM ADMINISTRATION. MAJOR DIVISIONS OF THE REPORT ARE (1) REVIEW, (2) EVALUATION, (3) IMPROVEMENT AND REDIRECTION, AND (4) ROLE OF THE FEDERAL GOVERNMENT. THE PANEL'S GENERAL RECOMMENDATIONS WERE THAT VOCATIONAL EDUCATION MUST--(1) OFFER TRAINING OPPORTUNITIES TO THE 21 MILLION NONCOLLEGE GRADUATES WHO WILL ENTER THE LABOR MARKET IN THE 1960'S, (2) PROVIDE TRAINING OR RETRAINING FOR WORKERS WHOSE SKILLS AND TECHNICAL KNOWLEDGE MUST BE UPDATED AND WORKERS WHOSE JOBS WILL DISAPPEAR, (3) MEET THE CRITICAL NEED FOR HIGHLY SKILLED CRAFTSMEN AND TECHNICIANS, (4) EXPAND VOCATIONAL AND TECHNICAL TRAINING PROGRAMS CONSISTENT WITH EMPLOYMENT POSSIBILITIES AND NATIONAL ECONOMIC NEEDS, AND (5) MAKE EDUCATIONAL OPPORTUNITIES EQUALLY AVAILABLE TO ALL. RELATED DOCUMENTS ARE APPENDIX I, "TECHNICAL TRAINING IN THE UNITED STATES" (VT 005 456), APPENDIX II, "MANPOWER IN FARMING AND RELATED OCCUPATIONS" (VT 005 455), APPENDIX III (VT 001 306) WHICH CONTAINS FIVE POSITION PAPERS USED BY THE PANEL, AND A SUMMARY OF THE REPORT (VT 001 796). THIS DOCUMENT IS AVAILABLE AS FS5.280--80021 FOR $1.25 FROM SUPERINTENDENT OF DOCUMENTS, U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D.C., 20402. (EM)

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Report of the Panel of Consultants on Vocational Education

VT005454

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

OE-80021

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EDUCATION

FOR A CHANGING WORLD OF WORK

Report of the Panel of Consultants on Vocational Education

Prepared at the Request of the
President of the United States

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Office of Education

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Letter of Transmittal

NOVEMBER 27, 1962.

HON. ANTHONY J. CELEBREZZE,
Secretary of Health, Education, and Welfare,
Washington 25, D.C.

DEAR MR. SECRETARY: I have the honor to submit herewith the Report of the Panel of Consultants on Vocational Education. The Panel was appointed by your predecessor on October 5, 1961, and charged with the responsibility of reviewing and evaluating the current National Vocational Education Acts, as directed by the request of the President of the United States in his message to Congress on American Education, February 20, 1961.

Members of the Panel appreciate the opportunity given them to be of service in this project.

Sincerely yours,

BENJAMIN C. WILLIS,
Chairman.

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October 1961–November 1962

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Foreword

In his Message to Congress on American Education, February 20, 1961, President John F. Kennedy said:

> The National Vocational Education Acts, first enacted by the Congress in 1917 and subsequently amended, have provided a program of training for industry, agriculture, and other occupational areas. The basic purpose of our vocational education effort is sound and sufficiently broad to provide a basis for meeting future needs. However, the technological changes which have occurred in all occupations call for a review and re-evaluation of these acts, with a view toward their modernization.
>
> To that end, I am requesting the Secretary of Health, Education, and Welfare to convene an advisory body drawn from the educational profession, labor, industry, and agriculture, as well as the lay public, together with representatives from the Departments of Agriculture and Labor, to be charged with the responsibility of reviewing and evaluating the current National Vocational Education Acts, and making recommendations for improving and redirecting the program.

On October 5, 1961, the White House announced that the Secretary of Health, Education, and Welfare had appointed the Panel of Consultants on Vocational Education.

The Panel began work with its staff in Washington, D.C., on November 9–11, 1961. Subsequently the Panel met on March 7–10, May 3–5, July 14–16, September 15–18, October 6–7, October 27–28, and concluded its review at a final meeting, November 26–27, 1962.

The Panel conferred with various consultants and commissioned special studies in addition to those prepared by its staff and the Division of Vocational and Technical Education, Office of Education, U.S. Department of Health, Education, and Welfare. The Panel also convened for its guidance a number of special conferences on the educational aspects of our national manpower resources and requirements.

The Panel of Consultants has thus had advice, suggestions, and recommendations from many persons representing cross sections of the American people: those who produce and distribute the goods and services which the Nation requires; those who are responsible for the educational development of the Nation; and those who take a general interest in the Nation's social and economic well-being. The members of the Panel themselves are a representative group of citizens who believe in the importance of education and who have tried to use reliable information and methods of analysis in order to formulate the recommendations presented in this report.

Benjamin C. Willis,
Chairman.

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Summary of Report

By 1970, the American labor force—those working or seeking work at any time during the year—will total 100 million people. There will be 87 million Americans working full time, the year round. Of these, 58 million are working now, 26 million will be young workers entering the labor force during the 1960–70 decade, and 3 million will be women entering or reentering the labor force.

The Panel of Consultants on Vocational Education has considered the educational needs of all nonprofessional workers. Many now at work will need training during this decade to keep pace with new methods, new materials, new opportunities. Many others will require retraining as their jobs disappear due to automation or economic change. The local-State-Federal vocational and technical education program, which is the subject of this report, can provide appropriate training and retraining for them.

It is especially important that the 26 million young workers who will start work in this decade adapt to the needs of a changing economy. The 8 out of 10 students now in elementary schools who will not complete 4 years of college may gain occupational competence in many ways: through on-the-job training organized by employers; through apprenticeship and journeymen training, or other trade union programs; in public and private technical institutes or in vocational and general high schools; from the armed services; by individual study and work; and especially through the public program of vocational and technical education.

The 3 million wives, mothers, and widows who will shift from full-time housework to jobs during the decade ending in 1970 will also need marketable skills. Public vocational and technical education programs can help these women improve old skills and gain the new ones needed in a changing world of work.

The local-State-Federal public program of vocational and technical education was inaugurated in 1917 with enactment of the Smith-Hughes Act. Subsequent legislation expanded and extended the original program. Today it benefits about 4 million students (half of whom are adults), and involves more than $250 million in local, State, and Federal funds expended in an estimated two-thirds of the high schools and many colleges and universities.

Every State and territory now offers federally aided vocational education programs. Each State has a vocational education board to set policy. Federal funds can be used for program operation but not for the construction of buildings; nearly all the Federal funds are used by the States as partial reimbursement for teachers' salaries. In all but the most recent programs—those under the Area Redevelopment Act and the Manpower Development and Training Act—States must match Federal funds dollar for dollar. In general, State and local expenditures far exceed the matching requirements. The types of reimbursable vocational instruction are specified in several Federal statutes, as well as the age and job status of the students.

Federal law limits funds for vocational instruction of both young people and adults to the following broad categories, among which current enrollment is distributed as follows:

Vocational category	*Enrollment (1960–61)*
Agriculture	805, 322
Distributive occupations	306, 083
Homemaking	1, 610, 334
Trades and industry	963, 609
Practical nursing	47, 264
Technician training	122, 952

A major concern of the Panel has been to study the strengths and limitations of these local-State-Federal programs, including the implications of automation, technological advance, population mobility, discrimination, urbanization, and the administration of the programs.

The Panel is convinced that vocational and technical education are sound investments in people. Data indicate that graduates of high school vocational education programs are less likely to be unemployed than other high school graduates, that vocational education graduates do in fact work in the occupations for which they prepare, and that vocational education increases their subsequent earnings. The Panel is satisfied that the local-State-Federal partnership in vocational and technical education is capable of imparting virtually any specific production service or technical skill that may be required by national or international crises or emergencies. The evidence includes the program's record of training production workers during World War II, the rising number of technicians being trained under the National Defense Education Act, and the increasing number of practical nurses and other health workers graduating annually from vocational education courses.

However, the Panel found that vocational education is not available in enough high schools. In a special study made by the Panel of 3,733 public high schools in 6 representative States, only 5 percent offered distributive education courses, only 9 percent offered trade and industrial courses, and less than half offered courses in homemaking or vocational agriculture. Even in the largest cities, less than one-fifth of the high school students are enrolled in vocational education programs, although two-thirds of those completing the high school curriculum will not complete 4 years of college education.

The Panel also found that vocational education programs are not preparing people for enough kinds of jobs. One study which compared vocational education enrollments with subsequent occupational employment found that only 10 boys studied vocational agriculture for every 100 males employed in that field. The ratios were even less satisfactory in wholesale and retail trade (1:200) and manufacturing and construction (2:444). In only nine States can one learn to be an office machine repairman through the federally reimbursed vocational education program. Similarly, only 11 States offer federally reimbursed courses in electric appliance repair, only 6 teach heating and ventilating mechanics through this program, and only 11 prepare people for work as drycleaners, spotters, or pressers.

Post-high-school technical training is an especially critical need, the Panel found. Estimates of the number of new technicians needed in every year of the present decade range from 67,800 to 200,000. Technician training is presently offered under a variety of auspices, public and private, with the federally reimbursed programs authorized for title VIII of the National Defense Education Act producing a major share of the graduates.

The Panel's general recommendations are that, in a changing world of work, vocational education must—

- **Offer training opportunities to the 21 million noncollege graduates who will enter the labor market in the 1960's.**
- **Provide training or retraining for the millions of workers whose skills and technical knowledge must be updated, as well as those whose jobs will disappear due to increasing efficiency, automation, or economic change.**
- **Meet the critical need for highly skilled craftsmen and technicians through education during and after the high school years.**
- **Expand vocational and technical training programs consistent with employment possibilities and national economic needs.**
- **Make educational opportunities equally available to all, regardless of race, sex, scholastic aptitude, or place of residence.**

The Panel believes that the Federal Government must continue to work with States and local communities to develop and improve the skills of its citizens. In place of the occupational categories specified in the present statutes, the Panel recommends that the local-State-Federal partnership increase support of vocational and technical education for—

I. High school students preparing to enter the labor market or become homemakers.

II. Youth with special needs who have academic, socioeconomic, or other handicaps that prevent them from succeeding in the usual high school vocational education program.

III. Youth and adults who have completed or left high school and are full-time students preparing to enter the labor market.

IV. Youth and adults unemployed or at work who need training or retraining to achieve employment stability.

V. Adequate services and facilities to assure quality in all vocational and technical education programs.

The Panel urges that occupational preparation be available to all American youth. The world of work requires many more young people well trained to enter employment in agriculture, the skilled trades, business, industry, merchandising, service occupations, and technical and health fields, as well as homemaking. Since the American population is highly mobile, responsibility for occupational preparation must be considered by every high school, but the need for vocational and technical education is especially evident in urban centers, which offer the greatest number of employment opportunities.

For young people in high school who are preparing to enter the labor market or to become homemakers, the Panel recommends that present vocational education programs be expanded. Training for office occupations should be included among the federally reimbursed vocational education programs. Preemployment training for the distributive occupations should be eligible for Federal support in addition to the present cooperative (work-school) programs. The vocational agriculture program, under Federal reimbursement, should permit instruction for occupations related to agriculture as well as for actual farming.

For high school age youth with academic, socioeconomic, or other handicaps that prevent them from succeeding in the usual high school vocational education program, the Panel recommends that instruction be highly individualized. Specially qualified and highly motivated teachers with occupational competence, who understand the needs of disadvantaged youth, should be employed for this purpose. Occupational information of practical significance and expert vocational counseling must be made available to their students. Diversity and flexibility must characterize these programs; experimental or pilot projects to develop more effective instruction should be fully supported by Federal funds.

For youth and adults who are full-time students preparing to enter the labor market, having completed or left high school, the Panel recommends that the Federal Government increase its support of full-time, post-high-school vocational and technical training. An advancing technology constantly demands more skilled craftsmen and highly skilled technicians in occupations requiring scientific knowledge. Vocational and technical education must prepare many more technicians and skilled craftsmen for employment in industry, business, agriculture, and the health fields.

Both the area vocational schools and the specialized vocational schools in large urban centers provide a diversity of occupational training programs to large numbers without the usual restrictive residence requirements. Many more of these schools are needed, especially for training highly skilled craftsmen and technicians. Technician training is also available in community or junior colleges, agricultural and technical institutes, and vocational-technical schools. Expanding their output is also a national need of urgent importance.

For youth and adults unemployed or at work who need training or retraining to achieve employment stability, the Panel recommends that part-time, short-term training courses be expanded. Millions of workers also require updating and upgrading—lifelong learning—in an era of changing materials, processes, tools, and techniques. Courses in many more fields, including the office and service occupations, should be made available to both groups. More equipment and facilities must be provided to extend educational opportunities to many more workers, especially those living in communities where training is a critical need. Apprentice and journeymen training opportunities should be expanded by mutual action of employers and unions.

For services required to assure quality in all vocational and technical education programs, the Panel recommends that—

- **Teacher and leadership training programs be improved and enlarged. Institutions of higher education, especially land-grant colleges and State universities, should provide for the professional growth of vocational and technical teachers.**
- **Basic education material oriented to specific occupations be available for all programs. For this purpose, instructional materials laboratories should be established in appropriate institutions and financed and coordi-**

nated through the Division of Vocational and Technical Education, U.S. Office of Education.

- **Occupational information and guidance services be available for all students. State and national leadership for these programs should be supported and coordinated by the Division of Vocational and Technical Education, U.S. Office of Education.**
- **Research and development in vocational and technical education be encouraged, supported, and coordinated at the national level. The results of this research and development should be made available on a nationwide basis.**

To finance expanding programs of vocational and technical education, support from all sources must expand as enrollments expand, as dropouts diminish, and as adult training and retraining become more urgent. Local and State governments should increase the $500 million they now provide annually for operation, administration, and construction costs. The Federal Government should provide at least $400 million as its investment in the 6 million young people and adults who currently benefit from vocational and technical education. This should include for the 1963–64 school year:

	Million
I. For youth in high school who are preparing to enter the labor market or to become homemakers	**$200**
II. For high school youth with academic, socioeconomic, or other handicaps that prevent them from succeeding in the usual high school vocational education program	**10**
III. For youth and adults who have completed or left high school and are full-time students preparing to enter the labor market	**50**
IV. For youth and adults unemployed or at work who need training or retraining to achieve employment stability	**100**
V. For services required to assure quality in all vocational and technical education programs	**40**

Part I

Review

There is a great and crying need of providing vocational education . . . for every part of the United States—to conserve and develop our resources; to promote a more productive and prosperous agriculture; to prevent the waste of human labor; to supplement apprenticeship; to increase the wage-earning power of our productive workers; to meet the increasing demand for trained workmen; to offset the increased cost of living. Vocational education is therefore needed as a wise business investment for this Nation, because our national prosperity and happiness are at stake and our position in the markets of the world cannot otherwise be maintained.

—REPORT OF THE COMMISSION ON NATIONAL AID TO VOCATIONAL EDUCATION, 1914

CHAPTER 1

Introduction

THE PUBLIC SCHOOLS of the United States now enroll nearly "all the children of all of the people," an enviable accomplishment that has taken more than a century to achieve. The American people have created and supported these schools to give their children a better life, and this the schools have done. They have given a large proportion of American children not only the literacy indispensable to effective citizenship but also some knowledge of the world about them, a foundation for further learning, the habits of safe, healthful living, a respect for individual dignity, and the practice of friendly cooperation, as well as an introduction to appreciation and practice of the arts. The American people expect all this of their schools, and more. Parents also expect their children to learn how to make a living, preferably a better living than they have managed to provide.

Of every 10 students now enrolled in the elementary grades, 3 will probably not attain high school graduation.[1] How will these three earn a living in the world of the 1960's without a high school diploma? How can the schools help them before and after they "drop out"? Of the other seven boys and girls who will finish high school in this decade, three will not go on to college.[1] What will these three high school graduates do for a living? How well will their high school education prepare them to earn a living or, in the case of many of the girls, to perform the duties of housewife and mother? Of the remaining four students who will eventually enter college, only two will receive baccalaureate degrees.[1] What are the employment prospects of the two who do not complete 4 years of college? How will high school and post-high-school study help them earn a living?

Thus, 8 out of 10 youngsters now in the elementary schools who have a need for vocational education are a major concern of this report. These young people will enter the labor force in this decade 26 million strong, and will account for nearly 90 percent of the growth in the labor force during the 1960's.[2] By the end of the decade, 3 million young workers will enter the labor force each year, compared with 2 million annually at the start of the decade. Will these young workers be well prepared for the world of work? Will their interests, skills, and knowledge match the changing requirements of the economy?

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[1] The Reference, Estimates, and Projections Section of the Educational Statistics Branch, Office of Education, in May 1962 estimated that 23,630,000 students will graduate from high school in 1961–70, or 73.3 percent of the 1960 population aged 8–17 (assuming graduation at age 18); it estimated first-time fall enrollment of degree-credit students in institutions of higher education at 13,340,000 during the period 1961–70, or 40.7 percent of the 1960 population aged 8–17 (assuming college entrance at age 18). It also estimated that 5,476,000 students will graduate with bachelor's or first professional degrees during 1961–70, or 20 percent of the 1960 population aged 12–21.

This report deals also with many of the 58 million workers in the labor force in 1960 who will still be at work at the end of the decade. Rare indeed is the worker whose job will not change to some extent during the coming years of development, innovation, and competition. New skills will be needed as old skills are outmoded by technological advance. Some industries and communities will inevitably expand, while others will contract under the spur of economic competition. How will their millions of adult workers cope with occupational change? Will they adapt their skills to the new demands of the 1960's, or will they swell the ranks of the chronically unemployed and the technologically displaced?

Three million wives, mothers, and widows will return to the labor force during the 1960's. Many had little or no work experience before marriage or motherhood. What are the marketable skills of these 3 million working women? How will they work as members of the labor force and also manage their homes during this decade of growth and change?

These workers, too, are considered in this report, the subject of which, in sum, is the more than 100 million Americans who will be working during 1970, a number equal to the entire population of the United States around 1915.[3] In the decade ahead, how well will the educational system of the United States prepare these citizens to enter the shops, stores, factories, homes, offices, farms, and service establishments of the Nation, to change occupations if need be, and to progress in their chosen tasks?

Learning To Work

Virtually every task and surely every occupation requires some prior instruction. Much of the informal occupational preparation is so well organized and supervised that it might be considered formal teaching, although it does not involve a classroom or any of the other conventional apparatus of education. The apprentice, for example, ideally learns his craft under the watchful eye of the journeyman or master craftsman, and he normally receives instruction in the classroom as well. He is taught an organized body of knowledge and skill and is examined to determine how well he has learned.

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[2] U.S. Department of Labor, *Manpower, Challenge of the 1960's*. Washington: U.S Government Printing Office, 1961, p. 13, *et passim*.

[3] Bureau of the Census, *Statistical Abstract of the United States, 1962*. Washington: U.S. Department of Commerce, 1962, p. 5.

The best foundation for entering upon a vocational education program is basic general education:

> Skills in reading, mathematics, and other general education fields are essential for acquiring specific vocational competence and the higher levels of education needed for many occupations. It is therefore essential for the schools to increase their efficiency in teaching the fundamental school subjects to all students. The early school leaver who has not acquired the basic skills is not only unable to find satisfactory permanent employment but is also greatly handicapped in acquiring specific vocational training as an adult.[4]

In a broad sense, all education contributes to vocational competency, but vocational education refers to that part of a student's instruction intended specifically to fit the student for work. Although it is clear that the physician, the architect, and the lawyer, for example, receive occupational preparation in their specialized graduate schools, in this report the term "vocational education" does not refer to instruction leading directly to a baccalaureate or professional degree.

This report uses the term "vocational education" to refer to all formal instruction for both youth and adults, at the high school, post high school, and out-of-school levels, which prepares individuals for initial entrance into and advancement within an occupation or group of related occupations. From time to time reference will be made in the report to "technical education," which is considered to be a part of the natural continuum of vocational education. References to technical education are used to focus attention upon a phase of vocational education having certain unique characteristics, usually requiring more rigorous science and mathematics background and more exacting skills.

Liberal education and vocational education are both essential aspects of the problem of preparing an individual for living and for earning a living; they cannot be thought of as hostile or mutually exclusive enterprises. An educational program which recognizes value in both liberal education and vocational education is most desirable for the attainment of future individual and national goals.

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[4] Wilbur B. Brookover and Sigmund Nosow, *A Sociological Analysis of Vocational Education in the United States*. A special study prepared for the Panel of Consultants on Vocational Education, July 1962, p. 16–17.

Theodore M. Greene summarized the issue as follows:

> What is obviously needed is a truly liberal academic community in which the study of art and typewriting, of philosophy and accounting, of theology and medicine, of pure and applied science are, though admittedly very different, judged to be equally honorable and valuable in their several ways. In such a community the so-called liberal disciplines would indeed be liberal because they would be studied and taught with an eye to the total enrichment of the life of responsible members of a free society; and in such a community the acquisition of the vocational skills, from the simplest to the most complex, would be equally liberal because they would be taught, not in a spirit of predatory egoism, but in a spirit of deep social concern for the needs of others and for the common good.[5]

Scope of This Study

Vocational education programs are conducted by a variety of institutions in addition to the public schools. Industry conducts for its employees extensive vocational programs covering a vast range of subject matter. Labor unions conduct programs for apprentices and journeymen. Some of these programs are excellent examples of educational planning, and much of the best instructional equipment and material is to be found there. The armed services also have extensive programs of vocational education. The Army, Navy, Air Force, and Marine Corps publish vocational guidance materials which are useful to the school counselor in relating the student's school experience to military service; military training is often useful to the veteran in finding a civilian occupation after military service. Various other branches of Government are involved in vocational education.

As indicated by the President's request to the Panel of Consultants, however, this report deals with the public school vocational education programs and with the Federal role in vocational education. To be sure, review of the federally financed vocational education programs in the public schools necessarily requires some consideration of the vocational education offered under other auspices. Therefore, the Panel has by no means ignored the contributions to vocational education offered by other agencies, including various branches of Government, as it has responded to the President's request that it *review*, *evaluate*, and make recommendations to *improve* and *redirect* the Federal vocational education programs.

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[5] Theodore M. Greene, "A Liberal Christian Idealist's Philosophy of Education," *Modern Philosophies and Education*. Chicago: National Society for the Study of Education, 1955, p. 119.

The Federal Government currently provides funds for vocational education[6] in about two-thirds of the public secondary schools, enrolling nearly 4 million students, half of whom are adults. More than $250 million per year is expended in local, State, and Federal funds for vocational education.[7]

The State and local school districts also provide occupational training for 2 million or more young people in office occupations, a program which is not assisted by Federal funds. The annual expenditure for these services probably exceeds $200 million. State and local school districts pay for buildings, administration for all vocational programs at the local level, and expenditures for equipment estimated at more than $100 million each year. The total amount expended each year by the States and the local school districts for vocational education exceeds one-half billion dollars.

The Federal Government has appropriated about $79 million for the fiscal year 1963 under the Smith-Hughes Act, the George-Barden Act, the Area Redevelopment Act, and the Manpower Development and Training Act, to aid vocational education in the public schools.[8] These vocational training programs are administered by the U.S. Department of Health, Education, and Welfare through its Office of Education. The long-established Federal-State program of cooperation for the development of vocational education is based upon three principles:

1. That development of vocational education is in the national interest because it is essential to the national economy, defense, and welfare;
2. That Federal funds are necessary to stimulate and assist the States in making adequate provision for vocational education;
3. That the local schools and the States exercise control of the program through State Boards for vocational education and State plans.

All the States and territories conduct federally aided vocational education programs. To set policies for its program, each State has a State vocational education board of at least three members. In all except three States the chief State school officer is executive officer for the State board for vocational education. Each State also has a director of vocational education who reports to the board through the executive officer.

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[6] According to data supplied by the Division of Vocational and Technical Education, U.S. Office of Education, 17,090 schools offered programs of federally reimbursed vocational education in 1961. According to *Statistical Abstracts of the United States, 1962*. (Washington: U.S. Department of Commerce, 1962, p. 111) there were 25,784 public secondary schools in 1960.

[7] *Digest of Annual Reports of State Boards for Vocational Education to the Office of Education, Division of Vocational Education*. Fiscal year ended June 30, 1961. Washington: U.S. Department of Health, Education, and Welfare, 1962.

[8] Data supplied by the Division of Vocational and Technical Education, U.S. Office of Education, October 1962.

The Federal vocational education acts require, as a condition for receiving Federal funds, that each State have a plan for the operation of its vocational educational program and for the training of its vocational teachers, such plan to be approved by the U.S. Commissioner of Education. Although some of the Federal funds may be used for instructional equipment for classroom or shop, none of the money may be spent for purchase of land or the construction of school buildings. Almost all the Federal funds are used by the States as partial reimbursement for the salaries paid to vocational teachers. In all but the most recently authorized programs, matching of funds between the State and Federal governments is on a dollar-for-dollar basis. In most States, the expenditure of State and local funds far exceeds the matching requirement.

The Federal vocational education acts presently limit the use of Federal funds to programs that are under public supervision and control, of less than college grade, and for persons over 14 years of age. The "less than college grade" requirement does not imply instruction of lesser quality than that of college level; it does mean that these vocational courses do not necessarily require college entrance conditions, and programs are not primarily part of an educational curriculum or continuum leading to a baccalaureate or engineering degree. Although the work in these schools and classes is not designed to provide credit toward a degree, vocational education is offered by post-high-school institutions (community colleges, technical institutes, area schools, some colleges and universities) as well as by high schools.

Federal legislation specifies vocational instruction in the areas of agriculture; the distributive occupations (all aspects of marketing); homemaking; industrial fisheries; practical nursing and other nonprofessional health occupations; trades and industry—machine shop work, automobile repair, plumbing, food service, sheet-metal work, barbering, carpentry, mechanical drafting, hairdressing, etc.; and other highly skilled technical occupations essential to the national defense, such as electronic circuitry, optical physics, mechanical design, process control, and data processing. Recent Federal legislation, such as the Area Redevelopment Act of 1961 and the Manpower Development and Training Act of 1962, does not specify occupational training categories.

The Changing Environment of Vocational Education

The Panel directed its attention primarily to the decade of the 1960's. It hopes that the recommendations in this report will be accepted and acted upon in time to expand and reshape vocational education during this period, since alterations and accelerated expansion in this educational program must be effected immediately if the United States is to achieve its economic goals of growth and development during the coming decade. In some instances, this report considers demographic and other projections beyond 1970, but, for the most part, the Panel has preferred not to predict past the end of the decade. Statistical data presented in this report are the latest available.

The U.S. population continues to grow at the relatively rapid rate maintained since the end of World War II. In the 1950–60 decade, the population of the United States expanded by about 28 million persons, the equivalent of adding two or more of the most populous States—California and New York.[9] If the present birth rate is maintained, the total population of the United States will increase from about 180 million in 1960 to about 214 million in 1970,[9] and to 260 million in 1980.[10]

Though it may be hazardous to forecast the future population growth of the United States, there is considerably less risk in predicting the number who will reach certain significant ages in the future. For example, virtually all the 4.2 million children born in 1960[11] will reach their 5th birthday in 1965, their 10th in 1970, and their 20th in 1980. These population figures, which can be predicted with relative certainty, obviously have profound implications for educators.

From 1955 to 1959, the average number of youngsters reaching their 14th birthday (the beginning of high school age) was 2.7 million annually.[12] This total will jump to 3.2 million in the years 1960–64, to 3.9 million annually between 1965 and 1970, and it will exceed 4 million annually in the first 5 years after 1970.[12]

Another factor in the changing environment of vocational education is that of population mobility. Every year, nearly one American in five changes his residential address.[13] One person in four now lives in a State other than the one in which he was born.[14] Two major trends in population mobility are:

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[9] *Statistical Abstract of the United States, 1962, op. cit.*, p. 5–9.

[10] 259,584,000, assuming 1955–57 fertility rates. Bureau of the Census, *Current Population Reports*, Series P–25, No. 251. Washington: U.S. Department of Commerce, 1962, p. 4.

[11] *Statistical Abstract of the United States, 1962, op. cit.*, p. 53.

[12] Bureau of the Census, *United States Census of Population, 1960*. Washington: U.S. Department of Commerce, 1962. Table 46.

[13] Bureau of the Census, *Mobility of the Population of the United States, March 1960 to March 1961*. Washington: U.S. Department of Commerce, 1962.

1. A movement to the West, to the Southwest, and to the States bordering on the Pacific and Atlantic Oceans, the Gulf of Mexico, and the Great Lakes;
2. A movement to metropolitan areas, particularly their suburbs, and away from the rural areas. The 1890 census reported that two-thirds of the U.S. population lived in rural areas;[15] by 1950 the proportions had been reversed, with only one-third of the population living in rural areas; and that proportion declined still further between 1950 and 1960. The urban population now exceeds the rural in 39 States.[16]

Clearly, an increasing number of the American people live not only in urban areas, but in the larger urban areas. In 1960 nearly two-thirds of the Nation's population lived in Standard Metropolitan Statistical Areas, defined as cities of 50,000 population or more, the county in which they are located, and any adjoining county closely related to the central city.[17] The Bureau of the Census reports that approximately 85 percent of the national growth during the last decade was in these metropolitan areas, and more than three-fourths of their population growth was outside the central cities.[18] As a group, the central cities themselves gained relatively little; many, including New York, Chicago, Philadelphia, and Detroit, showed some small losses.[19] The suburban areas, including satellite cities, increased their 1960 population totals by nearly 50 percent over 1950.[20]

Although the metropolitan areas in the South and West grew more rapidly than those in the North and East, a concentration of metropolitan areas continued through the Nation. The contiguous block of metropolitan areas extending from Maine to Virginia, which grew by 16.5 percent during the 1950's, now includes about 17 percent of the total population of the United States.[21] Nowadays, one who drives along the Atlantic coast from Portland, Maine, to Washington, D.C., or along the 200 miles of Pacific coast from Santa Barbara to San Diego, Calif., could easily imagine that he is passing through one continuous city.

A highly significant population development in the coming decade will be the unprecedented increase in the 14- to 25-year-old age group in the United States.[22] Because of the high birth rate after World War II, this age group will represent nearly half the total labor force in 1970.[23] This means that 26 million new workers will enter the labor market during the 1960's[24]—at the rate of 50,000 a week—at a time when enormous investment in plant and equipment during the 1950's has given factories and farms a productive capacity that frequently outstrips demand. Filling 50,000 jobs a week for the next 10 years will present major problems—educational as well as economic—even to a nation as resourceful as the United States.

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[14] 26.4 percent, *Statistical Abstract of the United States, 1962, op. cit.*, p. 34.

[15] 63.9 percent, cited in J. Chester Swanson, *Development of Federal Legislation for Vocational Education*, Chicago: American Technical Society, 1962, p. 32.

[16] 36.0 percent in rural areas in 1950, 30.1 percent in 1960, *Statistical Abstract of the United States, 1962, op. cit.*, p. 20.

[17] *Ibid.*, 212 SMSA's 112,885,178, p. 13; total population 179,323,175, p. 7.

[18] *1960 Census PC(1)1B U.S., op. cit.*, p. 1–176; *Statistical Abstract of the United States, op. cit.*, p. 5.

[19] *Statistical Abstract of the United States, 1962, op. cit.*, respectively, −1.4 percent, −1.9 percent, −3.3 percent, −9.7 percent, pp. 14 and 16.

[20] 48.6 percent, *Ibid.*, p. 13.

[21] *U.S. Census of Population, 1960, op. cit.*, table 63.

The size of the various age groups of the working population will continue to be a persistent problem of vocational education for this decade. This fact is particularly true of the young worker group and the older worker group, which will increase 46 percent and 20 percent, respectively, by 1970.[25]

A Decade of Economic Development

On November 17, 1961, the United States joined with the 19 other members of the Organization for Economic Cooperation and Development (OECD) to set a mutual target for economic growth. In substance, these free nations have pledged themselves to strive to attain a 50-percent increase in their combined national output during the decade of the 1960's. Arithmetically, this means an average annual growth rate of 4.1 percent. The United States entered this decade with a growth rate of 3.5 percent; it can achieve the goal of the OECD only if it exceeds an average growth rate of 4.5 percent annually during the second half of the decade. Economists have stated that a growth rate of 4.5 percent annually is well within the country's capability.[26]

One need not be an economist to see readily that education—especially vocational education—is directly related to the annual total output of goods and services produced by a given labor force. Enhancing the skill of the labor force through education and training will expand output even if technology, capital, and labor remain fixed quantities. How important is the factor of education in the economic equation? This question cannot be answered definitely. Scholars agree, however, that education was responsible for between one-fourth and one-half of the increased national output achieved by the United States between 1929 and 1956 that could not be attributed to increased utilization of capital and labor.[27]

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[22] Bureau of the Census. *Advance Reports: General Population Characteristics.* 1960 Census of Population. Washington: U.S. Department of Commerce, Mar. 31, 1961.

[23] *Manpower, Challenge of the 1960's, op. cit.*, p. 6.

[24] *Ibid.*, p. 13.

[25] *Ibid.*, p. 6.

[26] *Economic Report of the President Transmitted to the Congress, January 1962*, together with the *Annual Report of Council of Economic Advisers.* Washington: U.S. Government Printing Office, 1962, p. 144.

The economic effects of education are readily demonstrable in the case of individuals. It is well known that there is a high correlation between years of schooling attained and lifetime earnings.[28] Indeed, this correlation is so apparent that it stimulates parents and children to forego current enjoyment of goods and services in order to invest in education. Intuitively or rationally, they thus recognize that education is an investment in higher future earning power for the individual. In economic theory, higher individual earnings generally indicate a greater economic contribution or higher productivity. Hence, as education raises individual incomes, it is also raising national output.

The magnitude of the major economic factors for the beginning and end of this decade of economic development, as calculated by the Council of Economic Advisers, is shown in table 1.

Table 1.—U.S. output, population, labor input, and productivity, 1960 actual and estimated 1970 [1]

Item	1960	1970	Percentage of average annual increase
Gross national product (GNP; billions of dollars, 1961 prices)	511.1	825.0	4.9
Population (millions of persons)	180.7	213.8	1.7
Labor force (millions of persons)	73.1	87.1	1.8
Employment (millions of persons)	69.2	83.7	1.9
Man-hours (billions)	139.7	162.0	1.5
GNP per capita (dollars, 1961 prices)	2,828.0	3,858.0	3.2
Productivity:			
GNP per worker (dollars, 1961 prices)	7,386.0	9,868.0	2.9
GNP per man-hour (dollars, 1961 prices)	3.66	5.1	3.4

[1] Adapted from *Economic Report of the President Transmitted to the Congress, January 1962*, together with the *Annual Report of the Council of Economic Advisers.* Washington: U.S. Government Printing Office, 1962; table 12, p. 11.

The Panel accepts the Council's computations of these national economic goals for the current decade. The Panel also accepts the social assumptions made by the Council in deriving these estimates. For example, the Panel assumes that the 1955–57 fertility levels will continue, that the labor force participation rate will continue to average 57.8 percent of the noninstitutional population 14 years of age and older, that the unemployment rate will average 4 percent, and that barring national emergencies, the trend toward fewer average man-hours worked will continue at its previous pace.

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[27] *Ibid.*

[28] From age 25 until he dies or retires, the typical male high school graduate can expect earnings $71,868 higher than those of the typical male elementary school graduate. See Herman P. Miller, "Annual and Lifetime Income in Relation to Education," *American Economic Review*, December 1960, p. 981.

In social rather than statistical terms, the Panel thus assumes that the trend toward earlier retirement will continue and that more young people will remain in school. These deductions from the labor force will, however, be offset by an increasing proportion of adult women seeking paid employment. The net effect of these social trends will be to keep labor-force participation rates virtually unchanged during this decade. The assumption that the unemployment rate will average 4 percent is central; changes in this factor would alter the other variables. If, for example, the unemployment rate fell to 3 percent with rising wage and salary levels, there would be more retirements from the labor force and the withdrawal of some secondary wage earners. Such wage and employment levels, on the other hand, would probably induce many others to enter or remain in the labor force or to move from part-time to full-time work.

The Panel also assumes that the pace of technological advance will not abate, that the urban centers will continue to gain in population at the expense of the countryside, that the number employed in farming will continue to decline, that economic activity and employment will continue at relatively high levels, and that neither international nor domestic upsets will substantially alter the economic outlook during the 1960's.

The Challenge of Technological Change

The traditional production quota celebrated in the folksong "Pick a Bale a Day" is a puny standard surpassed years ago by the march of machinery across the cottonfields. Every year, mechanization is driving tens of thousands of farmworkers and their families from their homes. Field hands flock to town looking for jobs. Whole families uprooted from small farms which have been their homes for generations abandon their birthplaces and go into the cities to start entirely new ways of life. Because of technological advances, a strong back counts for far less than it did on the farm.

Mechanization and automation are now combined to make and roll steel, mine coal, manufacture engine blocks, weave cloth, sort and grade everything from oranges to bank checks, and even fabricate products. Machines replace unskilled workers rather readily, and even skilled and semiskilled workers must cope with automation and industrial development. As one recent study points out:

> In the highly automated chemical industry, the number of production jobs has fallen 3 percent since 1956, while output has soared 27 percent. Though steel capacity has increased 20 percent since 1955, the number of men needed to operate industry's plants—even at full capacity—has dropped 17,000. Auto employment slid from a peak of 746,000 in boom 1955 to 614,000 in November—since the meat industry's 1956 employment peak, 28,000 workers have lost their jobs despite a production increase of 3 percent. Bakery jobs have been in a steady decline from 174,000 in 1954 to 163,000 last year. On the farm 1 man can now grow enough to feed 24 people. Back in 1949 he could feed only 15.[29]

For the most part, technologically displaced factory workers find it difficult to shift to the service industries. Moreover, these industries, with the help of automation, can now carry on a vastly greater amount of business without a proportional increase in personnel. For instance, the Bell Telephone System handled a 50-percent increase in its volume of calls in the last 10 years with only a 10-percent increase in personnel. Automatic elevators have already displaced 40,000 operators in New York City. The Bureau of the Census used 50 statisticians in 1960 for tabulations that required 4,100 in 1950.[30]

It is estimated that more than 2 million jobs will be vacated over the next decade in the United States as a result of technological advance and improved productivity.[31] Though automation and technological advance eliminate the jobs of some workers with relatively high skill requirements and considerable seniority in their jobs, their impact is heaviest upon those who are without well-developed, salable skills. The people most severely affected are those who are the least educated or who have narrow or specialized skills rather than broad skills such as those of the craftsman.[32]

Predictions of U.S. manpower distribution at the end of the present decade indicate that the greatest proportional growth will be in the professional, sales, office, construction, and technical occupations.[33] In 1950 there were almost 5 million persons employed in professional and technical occupations in the United States.[34] By 1960 this total had reached almost 7.5 million,[34] and by 1970 it will exceed 10 million.[35] Much of this increase will be in the scientific and engineering fields, reflecting advances in electronics, jet aircraft, space technology, guided missiles, chemicals, and communications. Employment opportunities for highly skilled craftsmen and technicians who assist the topflight professionals will increase even faster than those for engineers and scientists.

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[29] "The Automation Jobless," *Time*, Vol. 77, No. 9, Feb. 24, 1961, p. 69.

[30] Donald N. Michael, *Cybernation: The Silent Conquest*. Santa Barbara, Calif.: Center for the Study of Democratic Institutions, 1962, p. 14.

[31] Ewan Clague and Leon Greenberg, "Technological Change and Employment," *Monthly Labor Review* (U.S. Department of Labor), July 1962.

[32] U.S. Department of Labor, *Who Are the Unemployed?* Washington: U.S. Government Printing Office.

[33] *Manpower, Challenge of the 1960's*, *op. cit.*, p. 8.

[34] *Statistical Abstract of the United States, 1962*, *op. cit.*, p. 226.

[35] *Manpower, Challenge of the 1960's*, *op. cit.*, p. 11.

A recent study by the National Science Foundation concludes that by 1970 the civilian economy will need 1,484,000 engineers, an increase of nearly 90 percent over 1959 estimates of 782,000.[36] Present estimates are that each engineer or scientist trained at a professional level requires the supplemental services of two to four trained technicians.[37] All forecasts predict an acute shortage of people trained for these technical vocations, which do not require a 4-year college education.

By 1970, too, there should be more than 10 million service workers in the United States, or 2 million more than in 1960.[38] It is further estimated that 5 million additional skilled craftsmen will be needed by 1970.[39] The projections of the Bureau of Apprenticeship and Training of the U.S. Department of Labor indicate that, unless there is a vast increase in the number of persons entering apprentice training, there will be a very serious shortage of skilled artisans in the years ahead.[39] Moreover, there will also be a growing demand for such service workers as cooks, waitresses, barbers, policemen, firemen, beauticians, practical nurses, and others.

Importance of Vocational Education

The implications for vocational education of these demographic, economic, and technological trends are discussed more fully elsewhere in this report. Vocational education programs can help lower unemployment rates by training young people and adults and retraining the unemployed for skilled, service, and technical occupations. If national policy requires an increase in labor productivity, vocational education can help produce the desired increase, as it has done before. Most significant, vocational education can help assure that the labor force will in fact attain the 4.5-percent average annual increase in productivity necessary in the present decade to meet the accepted goals for national economic growth.

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[36] National Science Foundation, *The Long-Range Demand for Scientific and Technical Personnel*, prepared for the NSF by the U.S. Department of Labor, Bureau of Labor Statistics. Washington: U.S. Government Printing Office, 1961, p. 27.

[37] Engineering Manpower Commission, "Technician Lag Intensifies Crisis," *Engineering and Scientific Manpower Newsletter*, No. 132, April 1962, cited in Lynn A. Emerson, *Technical Training in the United States*. Special report prepared for the Panel of Consultants on Vocational Education, June 1962, pp. 156 and 158.

[38] Bureau of Labor Statistics, *America's Manpower Needs and Resources*. Washington: U.S. Department of Labor, March 1960.

[39] U.S. Department of Labor, *Occupational Information for Use in Developing Education and Training Programs*. A special report prepared for the Panel of Consultants on Vocational Education, June 1962.

It is becoming increasingly clear that there is no real assurance now that mastery of an occupation, once achieved, will last any worker a lifetime. Although jobs may change, a worker who has mastered the skills of a trade or occupation and who has kept himself abreast of new techniques and developments can reasonably expect to continue in his trade throughout his working life. Preemployment training of youth must therefore provide a solid occupational foundation. In addition, the potential member of the labor force must be well aware of his responsibility for his own self-development if he is to continue to keep up to date in his occupation. Since more and more workers will need a program of lifelong learning, continuing educational opportunities must be provided to cope with occupational change. Vocational educators must train more broadly for career patterns, for a lifelong sequence of employment opportunities.

Despite Federal, State, and local support for nearly half a century, the development of vocational education has not been commensurate with its task. The purpose of this report is to undergird the conclusion of the Panel that the vocational programs of the American educational system must be expanded and accelerated both to train more skilled workers and to offer young people greater opportunity to develop their talents and abilities.

The goals of vocational education in the United States derive from the central tenets of democracy and from a common, deep appreciation of the value and dignity of work. Vocational education aspires to aid the development of individual worth and dignity in all people regardless of their differing degrees of educability by—

1. Helping them enter and find a rewarding place in the world of work;
2. Enabling them to advance economically and socially by virtue of their capabilities; and
3. Enhancing their sense of individual adequacy through release and exercise of the creative impulses latent within them.

Vocational education also strives to contribute to the stability and growth of the local, State, and national economies that sustain it. Moreover, vocational education stands to serve the needs of the United States as a major world power in a time of unprecedented peril and change, strengthening its bargaining power in world markets through increased individual productivity and strengthening its system of national defense through the optimum deployment of manpower resources.

Some of the key issues of the economic and social background of vocational education, as summarized by Harold F. Clark, are the following:[40]

1. All workers should be given adequate vocational education and training by some agency or institution.
2. There should be a detailed study made in each community to determine what part of the vocational education program should be carried on by the schools, by business and industry, by the military, or by other institutions.
3. Adequate information should be available to enable the individual to choose wisely the area of work for which he will be trained.
4. The bottom 10 percent of the population in learning ability must be given special attention.
5. A large part of the training of the bottom third of those employed should be done on the job.
6. The schools should have complete authority up to the age of 18 to say when a student can work, when he must be in school, and when he can combine part-time employment with school attendance.
7. One of the important problems for all groups is to make sure that the learners get enough work experience to acquire good working habits.
8. All students should get enough experience of working and studying at the same time to understand that this will be the normal procedure throughout their working life.

Summary

The President directed that the Panel of Consultants on Vocational Education review, evaluate, and recommend improvement and redirection of the Federal vocational programs.

In the light of current changes in the American economy brought on by technological change, increasing mobility of population, increasing size of the work force, greater role of women in the work force, and urbanization of the population, the Panel has attempted to outline the types of vocational education necessary for the 8 out of 10 Americans who will not receive a baccalaureate degree. Although the concern of the Panel is with public education, vocational education in its many forms beyond the scope of the Federal role has been considered in the development of these plans.

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[40] Harold F. Clark, *The Economic and Social Background of Vocational Education in the United States.* Special report prepared for the Panel of Consultants on Vocational Education, June 1962, p. 13.

CHAPTER 2

Historical Background

VOCATIONAL EDUCATION is as old as man himself. Early man practiced a vocation when he hunted in the forest, caught fish in the streams, or dug in the ground for roots, since he was performing tasks essential to living, and a vocation is what a person does to gain a living. Survival required that he teach his sons and daughters to perform the tasks necessary to provide food, clothing, and shelter; this teaching was the earliest vocational education.

Centuries later, the craftsmen of the ancient nations, such as Greece and Rome, and men of the Middle Ages and of the Rennaissance, produced some of civilization's most cherished treasures, and in so doing these craftsmen earned their living. Vocational education consisted largely of the father teaching the son, the mother teaching the daughter, and of apprenticeship. Since production was then carried on in the home, so was occupational instruction. The craftsman's shop was part of his home; his apprentices lived as well as worked with his family.

Apprenticeship was a fundamental educational institution in colonial America. Town officials resorted to involuntary aprenticeship to meet their obligations to orphans and to poor children, because through apprenticeship these young people could ultimately become self-supporting. Apprenticeship was the only means by which a boy or girl who could not pay could get an education. Apprenticeship involved five important elements: (*a*) trade or occupational instruction; (*b*) the mysteries, or secrets, of the trade (related technical instruction); (*c*) food, clothing, and shelter; (*d*) the customary general education of the period or the minimum education required by the trade or occupation—largely the 3 R's; and (*e*) religious instruction.

The schools of colonial America were characteristically British. Both the dame schools, which offered elementary education, and the Latin grammar schools, which prepared well-to-do sons for college, were hardly distinguishable from their English counterparts. The early universities were also patterned after English models. These schools and universities made no contribution to the development of vocational education. However, their educational philosophy was challenged by the ideals of the American Revolution. Benjamin Franklin and Thomas Jefferson, especially, were critical of the schools of their day.[1]

Jefferson advocated equal educational opportunity for all children as being indispensable to a functioning democracy.

> First of all, free elementary schools were to be provided for all future citizens. Second, free education of a more advanced nature was to be provided for a selected group of poor boys through a series of residential grammar schools which were also to serve the well-to-do on a tuition basis.[2]

Although Jefferson emphasized literary training, his proposals for a people's university included a trade or technical school.

> And to that [professional school] of technical philosophy will come the mariner, carpenter, shipwright, pumpmaker, clockmaker, machinist, optician, metallurgist, founder, cutler, druggist, brewer, vintner, distiller, dyer, painter, bleacher, soapmaker, tanner, powdermaker, saltmaker, glassmaker, to learn as much as shall be necessary to pursue their art understandingly, of the sciences of geometry, mechanics, statics, hydrostatics, hydraulics, hydrodynamics, navigation, astronomy, geography, optics, pneumatics, physics, chemistry, natural history, botany, mineralogy and pharmacy.[3]

Franklin shared Jefferson's opposition to a class system of education, but he characterized the traditional curriculum as "useless classics" and advocated emphasis instead on English, mathematics, and science. The academy he planned and founded, which opened in 1751, retained the traditional college preparatory curriculum, but also offered general and vocational courses as preparation for careers in commerce and shipping.

Most of the new nation's need for trained manpower was met, however, by the immigration to the United States of European journeymen.

During the 19th century, population growth, rise of the factory system, increased mechanization, and the decline of apprenticeship emphasized the need for occupational instruction in the United States. In part this need was satisfied by manual-labor schools, lyceums, mechanics' institutes, technical institutes, corporation schools, and private trade schools.

The imperative need for instruction in agriculture, business, and homemaking resulted in increasing attention to these areas in public education. Instruction by agricultural societies gave way to instruction in the agricultural and mechanical colleges after 1862,[4] and during the waning years of the 19th century some progress was made in agricultural instruction in the public secondary schools. Instruction in business occupations developed rapidly through a series of private business schools. Commercial departments flourished in the public secondary schools prior to 1900. Similarly, the "housewifery" of Emma Willard's Troy (N.Y.) Female Seminary and the general attention to the education of women produced late in the 19th century an extensive development of domestic-science programs in the secondary schools. These were some of the roots of vocational education.

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[1] Merle Curti, *Social Ideas of American Educators*, Report of the American History Association Commission on the Social Studies, Part 10. New York: 1935, pp. 34–47.

[2] James B. Conant, *Thomas Jefferson and the Development of American Public Education*. Berkeley: University of California Press, 1962, p. 3.

[3] *Ibid.*, p. 115. (Letter to Peter Carr from Thomas Jefferson, outlining an educational plan, Sept. 7, 1814.)

The need for vocational instruction in the burgeoning public schools of the Nation was then brought sharply into focus during the early years of the 20th century by the manpower requirements of a rapidly growing industrial nation.

Development of Smith-Hughes Act

Positive action in the development of vocational education came first in 1906, when a small group of men formed the National Society for the Promotion of Industrial Education.[5] The society proposed to bring prominently to the attention of the American people the need for industrial education. During the next 8 years, leaders in Government, industry, agriculture, labor, commerce, and education, as well as the public at large, studied cooperatively the general need for vocational education. Reports of these studies were printed and distributed widely.

Commission on National Aid to Vocational Education

Through the efforts of the National Society for the Promotion of Industrial Education, the need for vocational education was brought to the attention of Congress, which took the following action:

> The Commission on National Aid to Vocational Education was created by act of Congress approved January 20, 1914, authorizing the President of the United States to appoint a commission of nine members "to consider the subject of national aid for vocational education and report their findings and recommendations not later than June 1 next."[6]

The Commission, which included representation from the Congress, from labor, from industry, and from education, studied the problem of national aid to vocational education to answer six basic questions:[7]

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[4] Morrill Act, July 2, 1862. 12 Stat. 503, cited in *Federal Relations to Education*, Report of the National Advisory Committee on Education. Washington: National Capital Press, 1931, vol. II, p. 35.

[5] Layton S. Hawkins, Charles A. Prosser, and John C. Wright, *Development of Vocational Education*. Chicago: American Technical Society, 1951, pp. 62–63.

[6] *Report of the Commission on National Aid to Vocational Education*. Washington: U.S. Government Printing Office, 1914, vol. 1, p. 9.

1. To what extent is there a need for vocational education in the United States?
2. Is there a need for national grants stimulating the States to give vocational education?
3. What kinds or forms of vocational education should be stimulated by national grants?
4. How far can the Federal Government aid through expert knowledge vocational education in the various States?
5. To what extent should the Federal Government aid the States through national grants for vocational education?
6. Under what conditions should grants to the States for vocational education be made?

Although the Commission recognized that many different kinds and grades of vocational education would always be required, their attention was centered upon the kinds of vocational education that would prepare workers for the common occupations which employed the greatest number of workers. The Commission indicated further:

> There is a great and crying need of providing vocational education of this character for every part of the United States—to conserve and develop our resources; to promote a more productive and prosperous agriculture; to prevent the waste of human labor; to supplement apprenticeship; to increase the wage-earning power of our productive workers; to meet the increasing demand for trained workmen; to offset the increased cost of living. Vocational education is therefore needed as a wise business investment for this Nation, because our national prosperity and happiness are at stake and our position in the markets of the world cannot otherwise be maintained.[8]

The Commission reported its findings to Congress on June 1, 1914. Two and a half years later, when final action was taken on the resulting bill, it was passed with only one dissenting vote.[9] President Woodrow Wilson signed the Smith-Hughes Act on February 23, 1917.[10]

The Smith-Hughes Act provided a grant in perpetuity to the States of approximately $7.2 million annually for the promotion of vocational education in agriculture, trade and industrial education, and home economics. The act was administered by a Federal Board for Vocational Education, responsible directly to Congress and consisting of the Secretaries of Agriculture, Commerce, and Labor; the Commissioner of Education; and three citizens who represented the interests of labor, agriculture, and manufacturing and commerce.

A minimum amount of money was appropriated for the year 1917–18. This amount was increased annually until the total appropriation for agriculture, trades and industries, and home economics was made available for the year 1926–27; the full amount of teacher training funds was appropriated in 1921. The act provided that $3 million be allocated to agriculture, $3 million to trade and industrial and home economics education (not more than 20 percent of which could be used for home economics); $1 million for teacher training (not less than 20 percent nor more than 60 percent of which could be used for the training of teachers in any one of the categories of agriculture, trade and industry, or home economics); and $200,000 for the Federal Board for Vocational Education.

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[7] *Ibid.*, p. 10.
[8] *Ibid.*, p. 12, vol. 1.
[9] *Hawkins, et al.*, *op. cit.*, p. 121.
[10] Public Law 347, 64th Cong., approved Feb. 23, 1917.

To participate in the benefits of the legislation, the States were required to create or designate a State board for vocational education; prepare a State plan showing the programs they intended to provide under the Vocational Act; make an annual report to the Federal Board for Vocational Education showing the work done during the year and the receipt and expenditure of the money; and provide the program only in schools under public supervision or control. The minimum age requirement for students was 14 years.

The money for agricultural education was allocated to the States on the basis of the ratio of the State's rural population to the total U.S. rural population; urban population was used as the basis for allocations for trade and industrial and home economics education; and total population was used as the basis for distribution of the teacher-training funds.

Short-Term Acts

Other moneys were subsequently authorized by the Congress to provide for the further development of vocational education beyond the amounts appropriated under the Smith-Hughes Act. In general, the provisions of the Smith-Hughes Act applied to the George-Reed and the George-Ellzey Acts. These statutes differed from the Smith-Hughes Act primarily in that they contained terminal dates and merely authorized appropriations.

George-Reed Act

The George-Reed Act[11] authorized an appropriation of $500,000 for the year ending June 30, 1930, and an additional $500,000 each year thereafter for 4 years. The act expired on June 30, 1934.

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[11] Public Law 702, 70th Cong., approved Feb. 5, 1929.

The appropriation was divided equally between agriculture and home economics. Each State received for agriculture an amount equal to the ratio of its farm population to the total farm population of the United States; for home economics, the ratio used was the State's rural population to the total rural population of the United States. The act also provided $100,000 for the Federal Board for Vocational Education for administration and other purposes.

George-Ellzey Act

The George-Ellzey Act [12] authorized an appropriation of $3 million each year for 3 years. The money was equally divided among agricultural education, home economics education, and trade and industrial education. The ratios for distribution of money to the States were determined for agriculture by using the farm population; for home economics, the rural population; and for trade and industrial education, the nonfarm population. An amount of $100,000 was authorized for the Department of the Interior, Office of Education, for administrative and other purposes in connection with the act.

George-Deen Act

The short-term enactments demonstrated the necessity of additional funds for the promotion and further development of vocational education. Accordingly, the Congress approved the George-Deen Act on June 8, 1936, to replace the George-Ellzey Act which was to expire in 1937. This new act was a continuing statute with no expiration date. The George-Deen Act [13] became effective on July 1, 1937; the annual authorization for agriculture, home economics, and trade and industrial education was $12 million. The money was divided equally among the three services; allotments to the States were made on the basis of farm population for agriculture, rural population for home economics, and nonfarm population for trade and industrial education.

An annual allotment of $1.2 million was authorized for vocational programs in the distributive occupations. This money was allocated to the States on the basis of total population. For teacher training, the act authorized $1 million annually, distributed on the basis of total population. An allotment of $350,000 was made to the Office of Education for administrative and other purposes. The total annual authorization of the George-Deen Act was approximately $14,550,000.

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[12] Public Law 245, 73d Cong., approved May 21, 1934.

[13] Public Law 673, 74th Cong., approved June 8, 1936.

George-Barden Act

On August 1, 1946, the Congress approved the Vocational Education Act of 1946, which authorized an appropriation of $28,850,000 annually for the further development of vocational education. This act, technically an amendment of the George-Deen Act, is known as the George-Barden Act.[14] The funds were to be expended "for the same purpose and in the same manner" as had been provided in the Smith-Hughes Act, with several specified differences.

Ten million dollars was authorized for agricultural education, to be allocated among the States on the basis of farm population. Authority was given in the act for the expenditure of funds in support of two youth organizations in agriculture: the Future Farmers of America and the New Farmers of America. For home economics, $8 million was authorized, the basis of allotment being the rural population of the State. For trade and industrial education, $8 million was authorized, to be allocated among the States on the basis of nonfarm population. An authorization for distributive occupations was made in the amount of $2.5 million allocated to the States on the basis of total population. Funds for distributive occupations were limited to support for part-time and evening courses for employed workers. An appropriation of $350,000 was authorized to enable the Office of Education to carry out the provisions of the act. The act also included an open-end authorization to guarantee States minimum amounts for each occupational category of vocational education.

Practical Nursing.—The trades and industry appropriation authorized by the George-Barden Act was utilized to some extent for practical nurse training. The Health Amendments Act of 1956 [15] specifically authorized practical nurse training under the George-Barden Act. The Act authorized $5 million for practical nurse training annually for a period of 5 years. In 1961 the authorization was extended to June 30, 1965.[16] The practical nurse training provision of the Health Amendments Act became title II of the George-Barden Act and the previous authorization became title I.

Fishery Amendment.—An act of Congress approved August 8, 1956,[17] authorized an appropriation of $375,000 for vocational education in the fishery trades and industries and in the distributive occupations. Distribution of the funds was to be determined by the U.S. Commissioner of Education in consultation with the Secretary of the Interior. The purpose of the act was to promote the fishing industry by providing for the training of personnel. The act was an amendment to title I of the George-Barden Act.

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[14] Public Law 586, 79th Cong., approved Aug. 1, 1946.

[15] Public Law 911, 84th Cong., approved Aug. 2, 1956.

[16] Public Law 87–22, 87th Cong., approved Apr. 24, 1961.

[17] Public Law 1027, 84th Cong., approved Aug. 8, 1956.

National Defense Education Act

Title VIII of the National Defense Education Act,[18] "Area Vocational Education Programs," authorized an appropriation of $15 million annually for 4 years to support programs limited exclusively to the training of highly skilled technicians in recognized occupations necessary to the national defense.

These provisions of the National Defense Education Act became title III of the George-Barden Act. In October 1961, Congress extended the National Defense Education Act for 2 years to June 30, 1964.[19] Allotments were made to the States according to the State's proportion of the total amount allocated under the George-Barden Act for agriculture, home economics, trades and industries, distributive occupations, and fisheries.

Related Acts

In recent years the Congress has enacted other legislation with vocational training provisions which provide essentially new methods of Federal assistance for vocational education. These recent acts are described below.

Area Redevelopment Act

The Area Redevelopment Act[20] authorizes $4.5 million annually until 1965 for vocational education. The legislation recognizes the critical need for training which arises from unemployment and underemployment in economically distressed areas. The act authorizes vocational education for unemployed and underemployed persons who reside in certain geographic areas which have been designated as redevelopment areas by the Secretary of Commerce. The act further provides that the Secretary of Labor will select and refer persons for training. The Secretary of Health, Education, and Welfare may contract with other public and private educational institutions if the required services are not available through State and local vocational education agencies.

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[18] Public Law 85-864, 85th Cong., approved Sept. 2, 1958.

[19] Public Law 87-344, 87th Cong., approved Oct. 3, 1961.

[20] Public Law 87-27, 87th Cong., approved May 1, 1961.

Funds appropriated under this act go to the States for use only in designated redevelopment areas; there are no State allotments and no requirements for matching of funds for training programs.

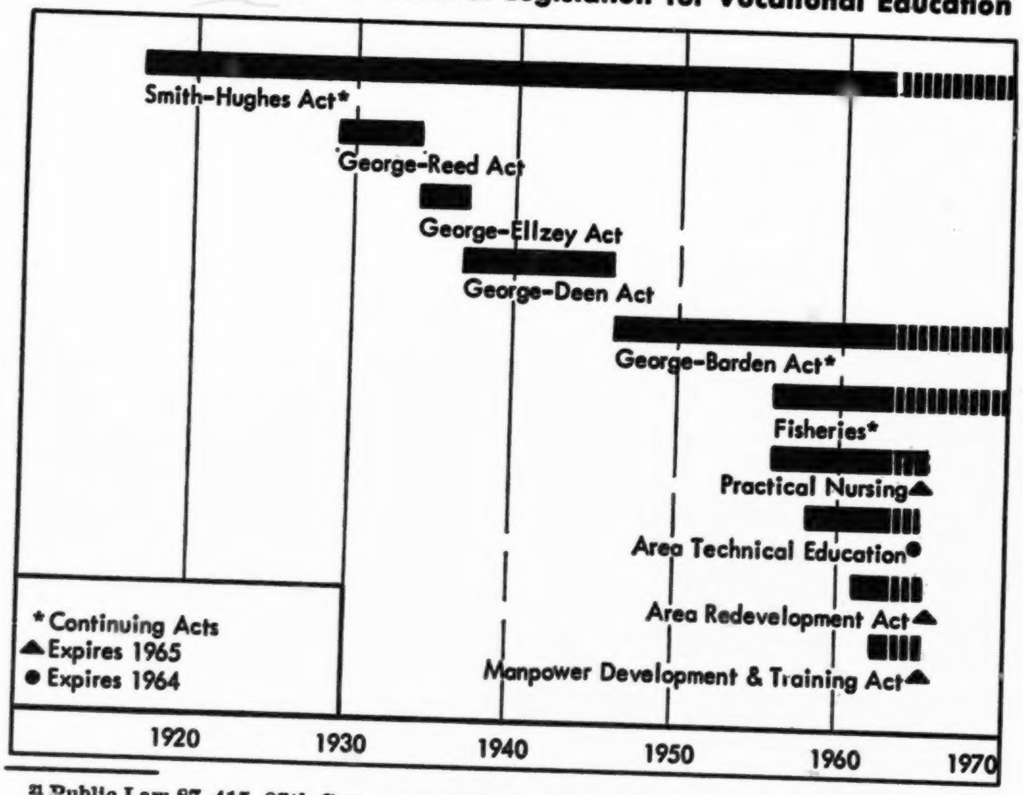
Manpower Development and Training Act

This act,[21] which expires in June 1965, authorizes $97 million for the first year and $161 million each year for the second and third years for training and skill development programs. Only a portion of the amount is to be used for training costs. Persons who are to enter training programs are referred by the Labor Department. If training is not available through public education agencies, the Secretary of Health, Education, and Welfare may contract with private institutions or agencies.

Under this statute, the Secretary of Labor and the Secretary of Health, Education, and Welfare apportion funds to each of the States after taking into consideration:

1. The proportion which the labor force of a State bears to the total labor force of the United States.

Figure 1.—Enactment of Federal Legislation for Vocational Education



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[21] Public Law 87–415, 87th Cong., approved Mar. 15, 1962.

2. The proportion which the number of unemployed persons in a State bears to the total number of unemployed in the United States.
3. The lack of full-time employment in the State.
4. The proportion which the insured unemployment within a State bears to the total number of insured employed within that State.
5. The average weekly unemployment compensation benefits paid by the State.

Appropriations in Fiscal 1963

The funds appropriated by Congress for the fiscal year ending June 30, 1963, and subsequently allocated to the States and territories are shown below:[22]

Vocational education program	*Appropriation for fiscal year 1963*
TOTAL	$79,358,278
Smith-Hughes Act:	
Agriculture	3,016,355
Trade and Industry and Home Economics	3,041,787
Teacher Training	1,103,313
George-Barden Act:	
Agriculture	10,309,997
Trade and Industry	8,215,703
Home Economics	8,182,825
Distributive occupations	2,602,298
Area technical training	15,000,000
Practical nursing	5,000,000
Fisheries	180,000
Supplemental acts:	
Puerto Rico	105,000
Guam	80,000
Virgin Islands	40,000
Area Redevelopment Act	2,481,000
Manpower Development and Training Act	20,000,000

Summary

The roots of vocational education extend back beyond the dawn of recorded history; its structure has changed as man's social structure has changed. Until comparatively recent times man's need for vocational education was largely satisfied by apprenticeship in one form or another. The technological development of the United States and the resulting critical need for vocational instruction gradually became problems of national concern and action. After a careful study of the need for vocational education by a national commission in 1914,

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[22] Data supplied by the Division of Vocational and Technical Education, U.S. Office of Education, October 1962.

Congress concluded that vocational education was a wise investment for the Federal Government.

In 1917 Congress passed the Smith-Hughes Act, which provided an annual grant in perpetuity of approximately $7 million to be distributed to the States to promote and develop vocational education as it was related to agriculture, trade and industrial education, and homemaking. This amount was supplemented during the period 1929–34 by the George-Reed Act which authorized from $500,000 to $2.5 million to increase the amounts available for agriculture and home economics. A second supplementary act, the George-Ellzey Act, replaced the George-Reed Act and authorized $3 million each year, beyond that provided by the Smith-Hughes Act, during the period 1934–37.

In 1937 the George-Deen Act authorized $14,550,000 (in addition to the Smith-Hughes Act) for the further development of vocational education in agriculture, trades and industries, home economics, and distributive occupations. The George-Deen Act was amended in 1946 to increase the total amount of the permanent annual authorization to $28,850,000. The act, as amended, became known as the George-Barden Act.

In 1956 title I of the George-Barden Act was amended to provide a permanent annual authorization of $375,000 for education in industrial fishing. Title II, added in the same year, provided an authorization for a 5-year period (later extended until 1965) of $5 million annually for the promotion and development of practical nurse training. The National Defense Education Act of 1958 added title III to the George-Barden Act and provided an authorization for a 4-year period (later extended until 1964) of $15 million annually to aid in the development of area vocational programs for the training of highly skilled technicians.

To meet critical training needs in economically distressed areas of the Nation, the Area Redevelopment Act of 1961 authorized an annual appropriation of $4.5 million until 1965. The Manpower Development and Training Act of 1962 contains, among other provisions, an authorization for vocational training. The appropriation for this purpose is to be determined each year within the limits of the total authorization. The act expires in 1965.

The total amount of money appropriated for vocational education under these acts by the Federal Government for fiscal year 1963 was $79,358,278.

CHAPTER 3

The Contemporary Program

THE CONTEMPORARY PROGRAM of vocational education, supported in part by funds appropriated under the Federal laws previously described, is conducted under public supervision or control in the various States and provides instruction for in-school youth and for out-of-school youth and adults.

The present occupational categories of vocational education consist of agriculture, trades and industries, home economics, distribution, practical nursing and related health occupations, the fishing industry, and the highly skilled technical occupations. These occupational categories of vocational education have been established by Federal legislation.

Areas of service to vocational education, common to the occupational categories, are: occupational information and vocational guidance, teacher education, research, supervision, and administration. Together, the occupational categories and the areas of service comprise the contemporary program. The description of these occupational categories and areas of service as they presently exist is the purpose of this chapter.

Agricultural Education

Enrollment in agricultural education for 1960–61 represented approximately 21 percent of the vocational education program financed with Federal funds. Classes are organized for three groups of persons: in-school youth enrolled in day classes who are preparing for farming, out-of-school young farmers who are becoming established in farming, and who attend part-time classes; and evening classes for out-of-school adult farmers who wish to improve their proficiency in farming by attending evening classes.[1]

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[1] Office of Education, *Administration of Vocational Education*, Bulletin No. 1, Revised 1958. Washington: U.S. Department of Health, Education, and Welfare, 1958, p. 13.

Enrollment of these groups for the year 1960–61:

	Enrollment	*Percent*
TOTAL	805, 322	100
In-school youth: Day programs	462, 756	57
Out-of-school youth and adults:		
Young farmer programs	73, 406	9
Adult farmer programs	269, 160	34

Programs of agricultural education for in-school youth are varied and flexible in terms of time allotment. Most States provide a number of plans, one of which can be easily adapted to the schedule of any high school. The length of the program is usually not less than 1 hour per day for the first year. In the second and third years, additional flexibility of scheduling makes it possible for classes to meet for longer periods of time 2 or 3 days each week. The balance of the schoolday is devoted to the required and other elective subjects in the high school program. Six months of directed or supervised practice on a farm is required of all students.

Programs for out-of-school young farmers, conducted on a part-time basis, are directed toward assisting the young farmer to make a success of his farming venture. The programs are therefore flexible and varied and may include such topics as farm operation and management, finance, recordkeeping, leadership, related science, advanced courses of a technical nature, new processes and procedures, farm machinery, farm business management, and other courses according to the needs of the young farmer group. Some States have an organization of young farmer groups and provide recognition for outstanding achievement.

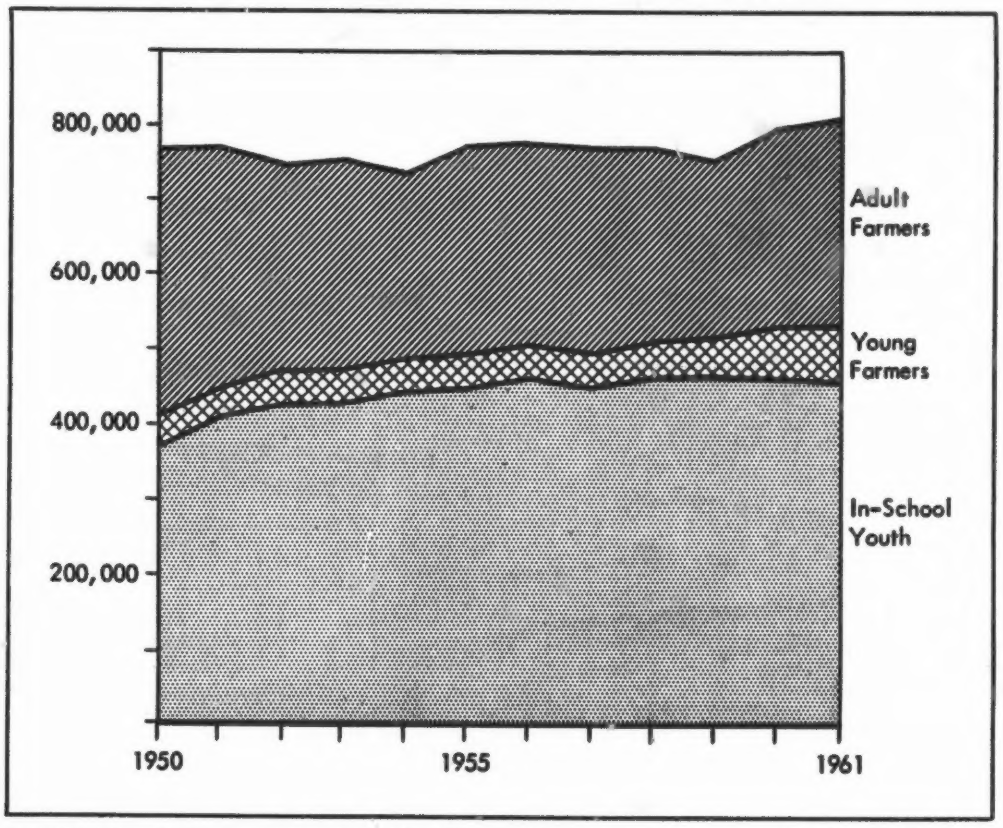
The evening program for out-of-school adult farmers is also varied in content and method. The adult farmers enrolled are generally well established in farming and have had years of experience. Some programs for adult farmers may provide courses in advanced farm management and general technology. A seminar type of class organization is frequently used, and the topics of discussion are developed from the actual needs of the particular group.

Enrollment, 1950–61

The enrollment relationship for in-school youth (day students) and out-of-school youth (young farmers) and adults is shown in figure 2.

During the 1950–61 period, the total growth in enrollment was approximately 5 percent; the in-school youth program increased 23 percent; the young farmer program increased 70 percent; and the enrollment in the adult farmer program showed a decrease of 22 percent.

Figure 2.—Enrollment in Agricultural Education [1]



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[1] U.S. Department of Health, Education, and Welfare, Office of Education, *Digest of Annual Reports of State Boards for Vocational Education.* Washington: U.S. Government Printing Office, 1950–1961. (This is an annual publication and is hereinafter cited as *Digest of Annual Reports.* The year or years concerned are indicated in the text.)

Expenditure, 1950–61

Total expenditures reported for the program of agricultural education increased approximately 80 percent during the 1950–61 period. The increase in Federal expenditures was 36 percent; in State expenditures, 104 percent; and in local expenditures, 91 percent. Table 2 presents the relative expenditures for 3 years during the 11-year period.

Table 2.—Federal, State, and local expenditure for agricultural education: United States, 1950, 1955, 1961 [1]

Year	Total expenditure	Federal	State	Local
1950	$38,523,073	$10,086,847	$12,658,580	$15,777,646
1955	53,707,124	11,825,580	18,472,982	23,408,562
1961	69,606,745	13,668,744	25,860,885	30,077,116

[1] All data based on corresponding issues of *Digest of Annual Reports*, Division of Vocational and Technical Education, U.S. Office of Education.

In 1960–61, the expenditure was: Federal, 19.6 percent; State, 37.2 percent; local, 43.2 percent. For every $1 of Federal funds, State expenditure was $1.90 and local expenditure $2.20.

A study of the expenditure by function indicates that 91 percent of the expenditure was for instruction; 8 percent for supervision and teacher training; and 1 percent for administration. Distribution of funds for the instructional program for 1960–61 is shown in table 3.

Table 3.—Percentage distribution of Federal, State, and local instructional expenditure for agricultural education, by type of program: United States, 1960–61 [1]

Instructional program	Total expenditure	Expenditure as percent of total		
		Federal	State	Local
ALL PROGRAMS	100.0	16.7	35.1	48.2
In-school youth (day program)	92.3	13.9	31.4	47.0
Out-of-school youth and adults:				
Young farmers	4.4	1.2	2.8	.4
Adult farmers	3.3	1.6	.9	.8

[1] Obtained from a special analysis of expenditures prepared by the Division of Vocational and Technica Education, U.S. Office of Education. (Expenditures for administration, supervision, and teacher training were deleted. Table 3 includes instructional expenditures only.)

Program Comparison, 1960–61

- In-school day program:
  - 58.0 percent of the enrollment.
  - 92.3 percent of the instructional funds.
- Out-of-school young farmer program:
  - 9.0 percent of the enrollment.
  - 4.4 percent of the instructional funds.
- Out-of-school adult farmer program:
  - 33.0 percent of the enrollment.
  - 3.3 percent of the instructional funds.

Trade and Industrial Education

Enrollment in trade and industrial education represented approximately 25 percent of the program of vocational education financed with Federal funds in 1960–61. Occupational areas served by trade and industrial education have no rigid boundaries.[2] Trade and industrial education includes training for skilled or semiskilled crafts or occupations which involve the functions of designing, producing, processing, assembling, maintaining, servicing, or repairing which are not specifically covered under vocational agriculture, distributive education, home economics, or office occupations. Included in the program of trade and industrial education are occupations such as practical nursing, food services, laboratory assistance, needle trades, and firefighting.

Enrollment in programs of trade and industrial education for 1960–61 was distributed as follows:

Type of enrollment	*Number*	*Percent*
TOTAL	963,609	100
In-school youth:		
Preparatory programs	286,656	30
Cooperative (school-work) programs	20,688	2
Out-of-school youth and adults:		
Apprentices in related instruction	132,027	14
Occupational extension programs (upgrading and updating)	524,238	54

Programs of trade and industrial education for in-school youth generally require that half the student's schoolday be devoted to shop, laboratory, and technical instruction directly related to the occupational area for which he is enrolled; e.g., carpentry, food trades, printing, dressmaking, and other courses. The balance of the schoolday is devoted to the study of required or other elective subjects of a general nature; e.g., English, history, mathematics, science, and other subjects. A student in a cooperative school-work program follows a similar pattern, except that his occupational instruction is given both on the job and in school.

Programs of trade and industrial education for out-of-school youth and adults are devoted largely to upgrading the skill and related technical knowledge of employed workers.

Instruction for Apprentices

Special part-time extension classes are conducted for apprentices to provide technical and related instruction supplemental to their training on the job. During the year 1960–61, there were 132,027 apprentices enrolled in these special classes; 83 percent of this group was registered under an apprenticeship law of a State, under a State apprenticeship agency, or by the Bureau of Apprenticeship, U.S. Department of Labor.[3, 4] Training for nonregistered apprentices is conducted under an agreement, either written or implied, between the apprentice and an employer, group of employers, or a Government agency. The enrollment of apprentices for 3 selected years was as follows.[3]

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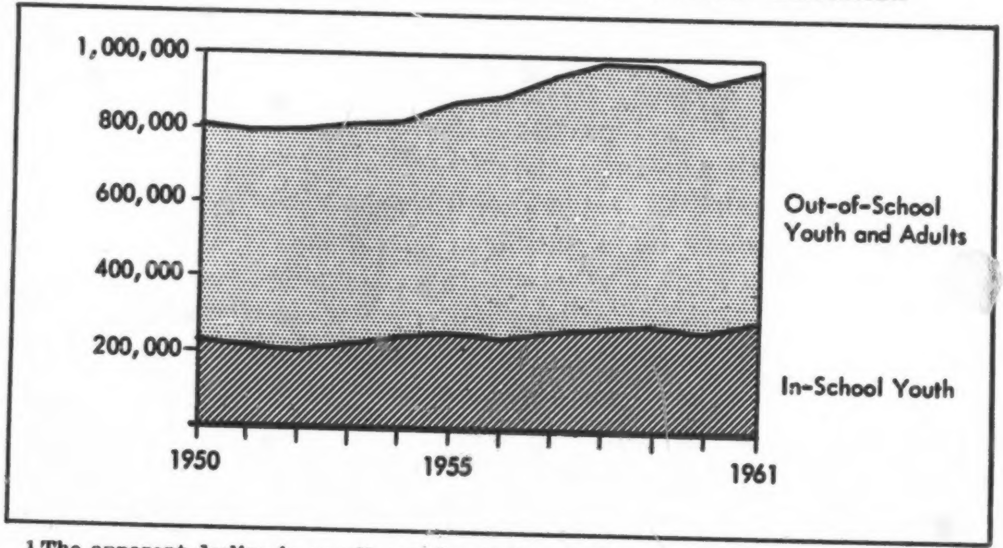
[2] *Administration of Vocational Education, op. cit.*, p. 16–17.

Year	*Total enrollment*	*Registered apprentices*
1954	121, 460	100, 450
1958	146, 766	115, 500
1961	132, 027	109, 659

Enrollment, 1950–61

The proportion of enrollment for in-school youth and out-of-school youth and adults for the years 1950–61 is shown in figure 3. The total enrollment has increased steadily over the years. The smallest increase in enrollment has been in programs for in-school youth.

Figure 3.—Enrollment in Trade and Industrial Education [1]



[1] The apparent decline in enrollment for 1959 and 1960 represents a change in accounting for enrollment, not an actual decline. Some enrollment previously reported in trade and industrial education was reported elsewhere beginning in 1959.

Expenditure, 1950–61

Expenditures for federally reimbursed programs of trade and industrial education increased 57 percent during the period 1950–61; the increase in Federal expenditures was 33 percent; in State expenditures, 94 percent; and in local expenditures, 47 percent.

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[3] *From Digest of Annual Reports.*

[4] *Administration of Vocational Education, op. cit.*, p. 17–18.

The degree of financial participation by Federal, State, and local governments in selected recent years is indicated by table 4.

Table 4.—Federal, State, and local expenditure for trade and industrial education: United States, 1950, 1955, 1961 [1]

Year	Total	Federal	State	Local
1950	$47,896,147	$8,613,242	$13,322,914	$25,959,991
1955	55,560,076	9,999,165	18,479,476	27,081,435
1961	75,395,615	11,436,119	25,834,435	38,125,061

[1] All data based on corresponding issues of *Digest of Annual Reports*, Division of Vocational and Technical Education, U.S. Office of Education.

In 1961, the expenditure was: Federal, 15 percent; State, 34 percent; local, 51 percent. For every $1 of Federal funds, State expenditure was $2.26 and local expenditure $3.33.

The data show that 87 percent of the money was spent for instruction, 11 percent for supervision and teacher training, and 2 percent for administration. Distribution of funds for the 1960–61 instructional program is shown in table 5.

Table 5.—Percentage distribution of Federal, State, and local instructional expenditure for various programs of trade and industrial education, by type of program: United States, 1960–61 [1]

Instructional program	Total expenditure	Expenditure as percent of total		
		Federal	State	Local
ALL PROGRAMS	100.0	12.8	33.2	54.0
In-school youth	80.1	7.3	28.1	44.7
Preparatory program	73.7	6.2	25.8	41.7
Cooperative (school-work) programs	6.4	1.1	2.3	3.0
Out-of-school youth and adults	19.9	5.5	5.1	9.3
Apprenticeship: related instruction	9.6	3.0	2.2	4.4
Occupational extension, upgrading and updating	10.3	2.5	2.9	4.9

[1] Obtained from a special analysis of expenditures prepared by the Division of Vocational and Technical Education, U.S. Office of Education. (Expenditure for administration, supervision, and teacher training were deleted.)

Program Comparison, 1960–61

- School preparatory program:
  29.8 percent of the enrollment.
  73.7 percent of the instructional funds.
- In-school cooperative program:
  2.1 percent of the enrollment.
  6.4 percent of the instructional funds.
- Out-of-school apprenticeship program:
  13.7 percent of the enrollment.
  9.6 percent of the instructional funds.
- Out-of-school extension program:
  54.4 percent of the enrollment.
  10.3 percent of the instructional funds.

Home Economics Education

Home economics education for many years has enrolled more students than other federally reimbursed vocational education programs. For the school year 1960–61, the enrollment of 1,610,334 students represented 41.8 percent of the total vocational education enrollment. Classes are organized for in-school youth and for out-of-school youth and adults. Enrollment in these categories for 1960–61 was:

Type of enrollment	*Number*	*Percent*
TOTAL	1, 610, 334	100
In-school youth (day classes)	981, 109	61
Out-of-school youth and adults (evening and part-time classes)	629, 225	39

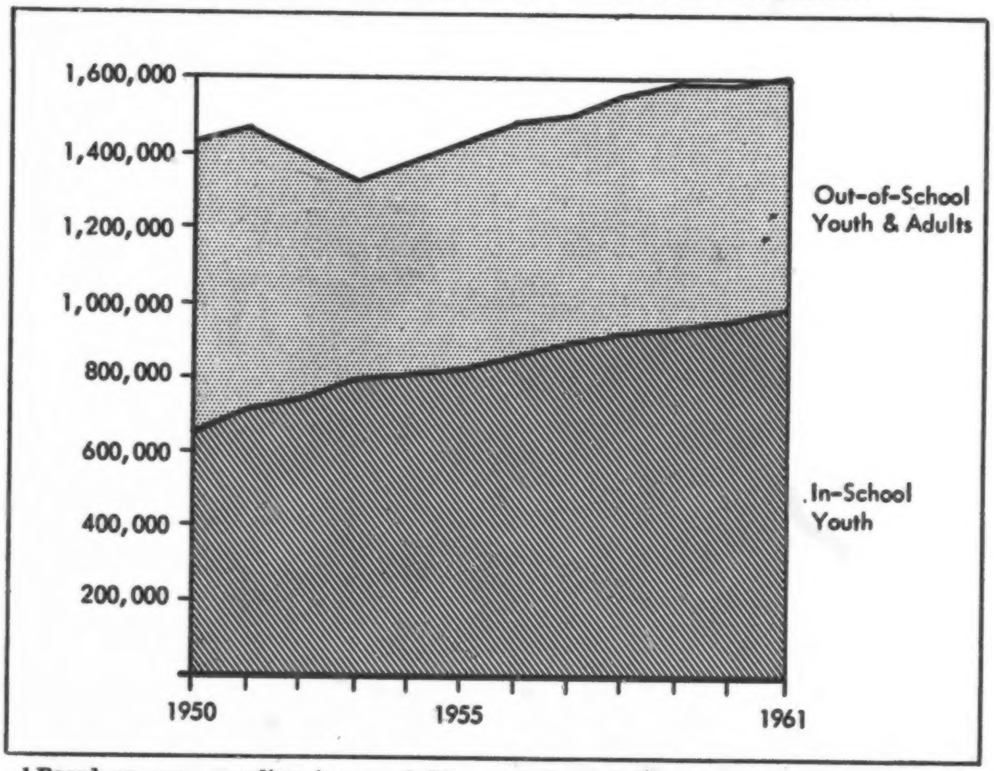
Programs for in-school youth and for out-of-school youth and adult homemakers are based on the needs of individuals enrolled and include both organized classwork and supervised projects in the individual's home. The study of many phases of homemaking is included, such as managing the home; maintaining the family's health; understanding the importance of good family relations; caring for and guiding the development of children; selecting, preparing, and serving nutritious family meals; selecting, caring for, and making clothing; managing money wisely; caring for sick and aged members of families; improving housing and homefurnishings; and providing suitable family recreation. These programs contribute to the quality of family life and the development of the individual.

The home project or home experience program is an essential part of the instruction for high school students in vocational homemaking. Provision is usually made for the high school teacher to counsel the pupils individually and in small groups, to visit their homes and talk with parents, and to work with pupils and parents in planning activities which pupils carry out in their homes or in the community. In many States teachers employed during the summer divide their time among teaching, following up on home projects, and developing programs for adult homemakers.

Enrollment, 1950–61

The proportion of enrollment of in-school youth and out-of-school youth and adults is shown in figure 4.

Figura 4.—Enrollment in Home Economics Education [1]



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[1] Based on corresponding issues of *Digest of Annual Reports*, Division of Vocational and Technical Education, U.S. Office of Education.

Expenditure, 1950–61

The total expenditure reported for federally reimbursed programs of home economics increased 97 percent during the 11-year period, 1950–61. For the same period the increase in Federal expenditure was 43 percent; State expenditure, 117 percent; local expenditure, 101 percent. Table 6 shows the expenditures for 3 years during the period.

Table 6.—Federal, State, and local expenditure for home economics education: United States, 1950, 1955, 1961 [1]

Year	Total expenditure	Federal	State	Local
1950	$36,953,938	$6,240,153	$12,770,988	$17,942,797
1955	49,461,352	7,700,881	18,036,243	23,724,228
1961	72,622,266	8,937,696	27,744,800	35,939,770

[1] All data based on corresponding issues of *Digest of Annual Reports*, Division of Vocational and Technical Education, U.S. Office of Education.

For the year 1960–61, the distribution of expenditures was: Federal, 12.3 percent; State, 38.2 percent; local, 49.5 percent. For each Federal dollar, $3.10 was expended in State funds and $4.02 in local funds.

The data for 1960–61 show that 91.6 percent of the money was spent for instruction; 7.6 percent for supervision and teacher training; and 0.8 percent for administration. The distribution of expenditures for instruction is shown in table 7.

Table 7.—Percentage distribution of Federal, State, and local instructional expenditures for various programs of home economics education, by type of program: United States, 1960–61 [1]

Instructional program	Total expenditure	Expenditure as percent of total		
		Federal	State	Local
ALL PROGRAMS	100.0	9.4	36.8	53.8
In-school youth (day program)	91.1	7.7	34.9	48.5
Out-of-school youth and adults (evening and part-time programs)	8.9	1.7	1.9	5.3

[1] Data obtained from a special analysis of expenditures prepared by the Division of Vocational and Technical Education, U.S. Office of Education. (Expenditures for administration, supervision, and teacher training were deleted.)

Program Comparison, 1960–61

- In-school day program:
  61.0 percent of the enrollment.
  91.1 percent of the instructional funds.
- Out-of-school part-time and evening program:
  39.0 percent of the enrollment.
  8.9 percent of the instructional funds.

Distributive Education

Education for distributive occupations (distributive education) is a program of instruction largely related to principles and practices of marketing and distribution. In the year 1960–61, an enrollment of 306,083 students represented 8 percent of the total federally reimbursed vocational education program. Instruction is limited to persons who are employed in distributive occupations. The Federal acts make no provision for distributive education programs for in-school youth who are not employed.

The in-school program consists of students in the 11th or 12th grade of high school and of students in the first 2 years of post-high-school programs, such as the junior college. These programs are all cooperative (school-work) programs in which students receive career training both in the classroom and in supervised work in a distributive occupation.

The out-of-school youth and adult programs are provided during, or outside of, the normal working hours for the employed youth or adult. These programs provide instruction for sales and sales-supporting employees, for junior and middle-management executives, and for managers and owners of businesses in which the marketing function is significant.

Enrollment in these programs for 1960–61 was:

	Enrollment	*Percent*
TOTAL	306, 083	100
In-school youth, cooperative programs (school-work)	43, 179	14
Out-of-school youth and adults (evening classes for employed persons)	262, 904	86

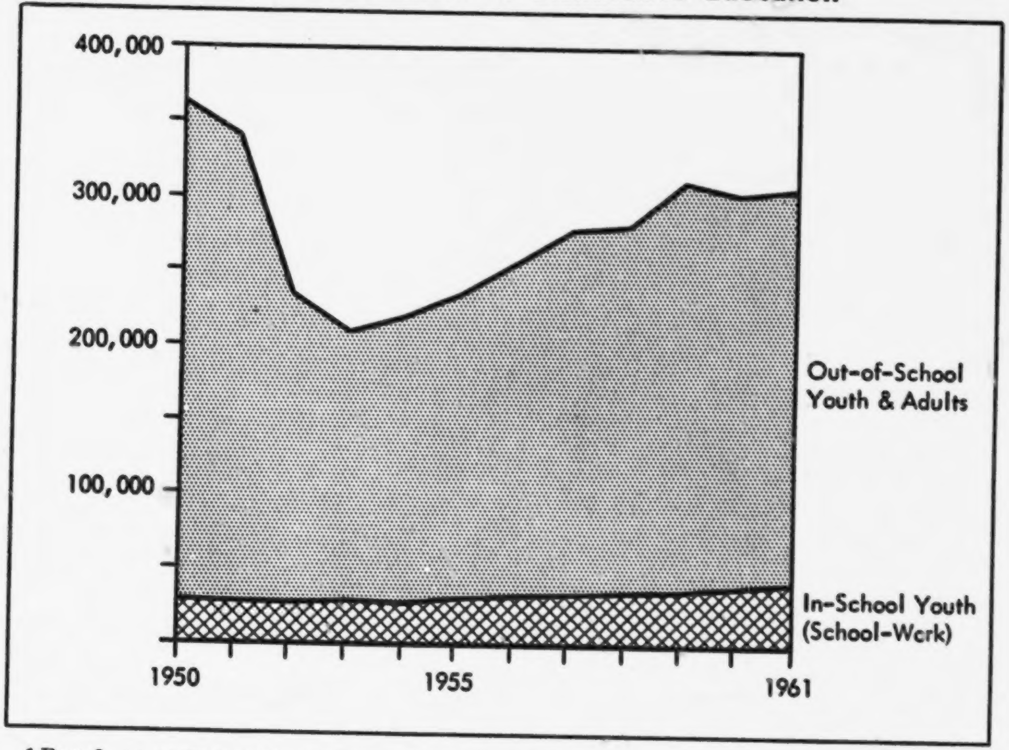
A person employed in a distributive occupation is engaged primarily in marketing or merchandising goods or services. Such occupations are found in retailing, wholesaling, storing, financing, manufacturing, and similar business establishments.

Distributive education curriculums are specialized and geared to the needs of some particular kind of distributive business or operation. For example, programs have been developed for training workers for restaurants, hotels, retail stores, real estate or insurance offices, and for various specializations within these areas. Some of the courses in distributive education relate to an operation or function applicable to several different kinds of business; for example, classes in advertising, small-business management, data processing, export trade, sales management, and supervisory training.

Enrollment, 1950–61

The proportion of enrollment for in-school (school-work) programs and programs for out-of-school youth and adults is shown in figure 5.

Figure 5.—Enrollment in Distributive Education [1]



[1] Based on corresponding issues of *Digest of Annual Reports*, Division of Vocational and Technical Education, U.S. Office of Education.

A sharp decrease in enrollment for the program for out-of-school youth and adults is shown for the years 1951–52 and 1952–53. The decrease in enrollment parallels a decrease in Federal funds supporting distributive occupations training. In 1951–52 when Federal funds were reduced 50 percent, enrollment dropped 31 percent. For the year 1952–53, Federal funds were again reduced 50 percent; enrollment dropped another 11 percent.

The Federal expenditure of $417,413 in 1953–54 was increased 98 percent, to $825,254 in 1954–55; enrollment increased 12 percent. Significant increases in Federal expenditures for the years 1955–56 and 1956–57 brought about corresponding increases in enrollment. The program for in-school youth has shown a 44-percent increase in enrollment during the period 1950–61.

Expenditure, 1950–61

The expenditures for 3 selected years during the period 1950–61 are shown in table 8.

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Table 8.—Federal, State, and local expenditure for distributive education United States, 1950, 1955, 1961 [1]

Year	Total expenditure	Federal	State	Local
1950	$5,412,596	$1,682,691	$1,775,180	$1,954,725
1955	6,032,662	825,254	2,602,545	2,604,863
1961	10,593,142	2,556,886	3,697,390	4,338,866

[1] All data based on corresponding issues of *Digest of Annual Reports*, Division of Vocational and Technical Education U.S. Office of Education.

In 1960–61 the expenditure was: Federal, 24 percent; State, 35 percent; and local, 41 percent. For every $1 of Federal funds, State expenditure was $1.44 and local expenditure $1.69. Table 9 indicates the relative distribution of expenditures in the two types of distributive education programs.

Table 9.—Percentage distribution of Federal, State, and local instructional expenditures for various programs of distributive education, by type of program: United States, 1960–61 [1]

Instructional program	Total expenditure	Expenditure as percent of total		
		Federal	State	Local
ALL PROGRAMS	100.0	19.5	32.4	48.1
In-school youth (part-time cooperative classes)	81.8	15.0	27.1	39.7
Out-of-school youth and adults (evening extension classes)	18.2	4.5	5.3	8.4

[1] Obtained from a special analysis of expenditures prepared by the Division of Vocational and Technical Education, U.S. Office of Education. (Expenditures for administration, supervision, and teacher training were deleted.)

Program Comparison, 1960–61

- In-school cooperative program:
  14.1 percent of the enrollment.
  81.8 percent of the instructional funds.
- Out-of-school youth and adult evening program:
  85.9 percent of the enrollment.
  18.2 percent of the instructional funds.

Practical Nursing and Other Health Occupations

Enrollment in federally reimbursed vocational education programs for practical nursing and for other health occupations was reported as 62,160 for the year 1960–61, or 1.6 percent of the total enrollment.[5] Although a few schools enroll high school seniors in these programs, the great majority of the enrollees are post-high-school students and adults.

Preemployment programs of practical nursing for in-school youth are generally 1 year in length and require approximately 2,000 hours of instruction.[6] Preemployment training programs for other health occupations, such as hospital aides and attendants, run from 4 to 10 weeks. Training for dental technicians, dental assistants, occupational therapy aides, medical assistants, and others, ranges from 1 to 2 years in length. The nature and content of instruction varies, depending in part upon the particular occupation, its licensing requirements, and professional support and concern.

Extension programs for persons employed in practical nursing and in other health occupations are usually short-unit programs devoted to specific topics.

Table 10.—Number and percent of enrollees in practical nursing and in other health occupations, by type of program: United States, 1960–61 [1]

Instructional program	Percent	Enrollment under George-Barden Act		
		Total	Title I	Title II
ALL PROGRAMS	100.0	62,160	14,896	47,264
Full-time preparatory programs: [2]				
Practical nursing	49.2	30,587	4,754	25,833
Other health occupations	10.3	6,403	3,138	3,265
Out-of-school youth and adult extension programs:				
Practical nursing	20.2	12,527	495	12,032
Other health occupations	20.3	12,643	6,509	6,134

[1] All data based on corresponding issues of *Digest of Annual Reports*, Division of Vocational and Technical Education, U.S. Office of Education.

[2] Program consists chiefly of adults.

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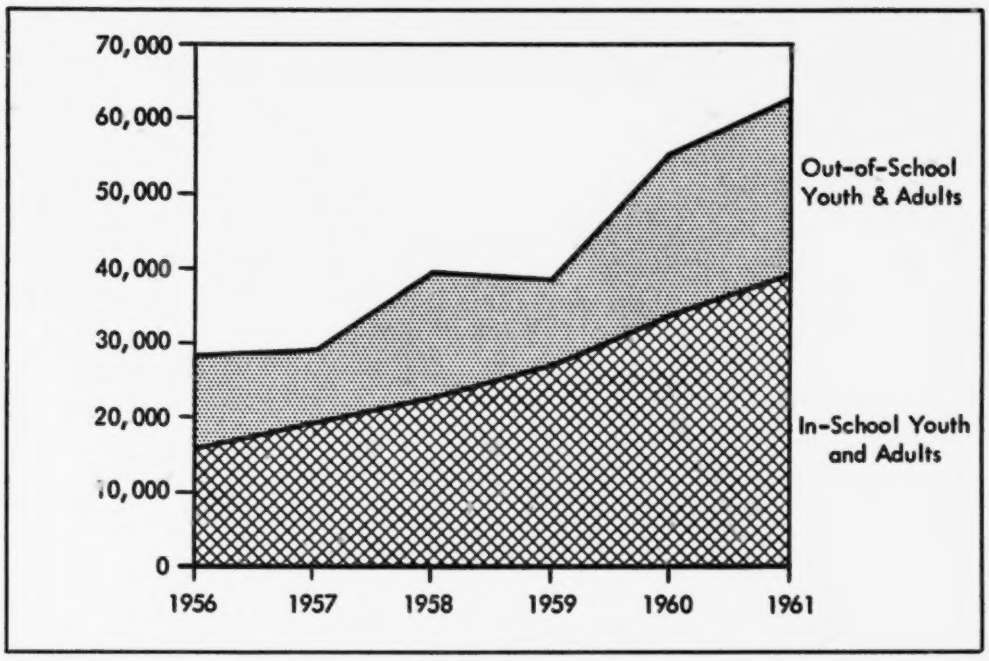
[5] *Digest of Annual Reports.*

[6] Margaret D. West and Beatrice Crowther, *Education for Practical Nursing, 1960.* New York : National League for Nursing, 1962, p. 25.

Enrollment, 1956–61

The relative enrollment of in-school youth and of out-of-school youth and adults for practical nursing and for other health occupations is shown in figure 6.

Figure 6.—Enrollment in Practical Nursing and Other Health Occupations [1]



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[1] Based on corresponding issues of *Digest of Annual Reports*, Division of Vocational and Technical Education, U.S. Office of Education.

Expenditure, 1957–61

Total expenditures for federally reimbursed programs of practical nursing education increased 438 percent from 1957 to 1961. The increase in Federal expenditure was 340 percent; the increase in State expenditure was 1,072 percent and in local expenditure 383 percent. The degree of financial participation of Federal, State, and local governments is indicated in table 11.

Table 11.—Federal, State, and local expenditure for practical nursing (title II, George-Barden Act): United States, 1957, 1959, 1961 [1]

Year	Total	Federal	State	Local
1957	$1,385,861	$795,370	$159,458	$431,033
1959	4,720,508	2,161,230	1,269,728	1,289,550
1961	7,449,578	3,496,892	1,868,851	2,083,835

[1] All data based on corresponding issues of *Digest of Annual Reports*, Division of Vocational and Technical Education, U.S. Office of Education.

In 1960–61, the expenditure was: Federal, 47 percent; State, 25 percent; and local, 28 percent; for every $1 of Federal funds, State expenditure was $0.53 and local expenditure $0.60.

Distribution of funds for the 1960–61 instructional program is shown in table 12.

Table 12.—Percentage distribution of Federal, State, and local instructional expenditures for various programs of practical nursing (title II, George-Barden Act), by type of program; United States, 1960–61 [1]

Instructional program	Total expenditure	Expenditure as percent of total		
		Federal	State	Local
ALL PROGRAMS	100.0	46.3	23.3	30.4
Full-time preparatory program	94.7	43.9	22.0	28.8
Out-of-school youth and adults (extension program)	5.3	2.4	1.3	1.6

[1] All data based on corresponding issues of *Digest of Annual Reports*, Division of Vocational and Technical Education, U.S. Office of Education.

Program Comparison, 1960–61

- Preparatory program:
  - 61.6 percent of the enrollment.
  - 94.7 percent of the instructional funds.
- Extension program:
  - 38.4 percent of the enrollment.
  - 5.3 percent of the instructional funds.

Training for Fishery Occupations

Training for fishery occupations is provided in those States where fishing is carried on commercially. In the year 1960–61, nine States and Puerto Rico reported programs for the fishing industry. Enrollment for the 4 years of operation was:

Year	*Enrollment*
1958	783
1959	3, 319
1960	3, 163
1961	2, 298

Short-term programs for employed workers cover navigation and piloting; diesel engine operations and repair; radio, visual communication, and depth recording; and making and caring for commercial fishing equipment.

Expenditures for the years 1958–61 are shown in table 13.

Table 13.—Amount and percent of annual Federal, State, and local expenditure for training for the fishery occupations: United States, 1958–61 [1]

Year	Total	Federal		State and local	
		Amount	Percent of total	Amount	Percent of total
1958	$85,469	$40,639	47.5	$44,830	52.5
1959	132,114	57,638	43.6	74,476	56.4
1960	201,640	84,154	41.7	117,486	58.3
1961	253,754	105,912	41.7	147,842	58.3

[1] All data based on corresponding issues of *Digest of Annual Reports*, Division of Vocational and Technical Education, U.S. Office of Education.

Area Technical Education Programs

The federally reimbursed, area technical education programs enrolled 122,952 students in 1960–61. This enrollment represented approximately 3 percent of the total vocational education program. Programs for in-school youth and out-of-school youth and adults have the following enrollment:

	Enrollment	*Percent*
TOTAL	122,952	100.0
In-school programs	39,224	31.9
Out-of-school youth and adults	83,728	68.1

Instruction was offered in broad occupational areas such as electronic, mechanical, electrical, chemical, aeronautical, production, instrumentation, civil, data processing, and computer programing. Enrollments have increased each year, as follows:

Year	*Enrollment*
1959	48,564
1960	101,279
1961	122,952
1962 (estimated)	149,000

Expenditure, 1959–61

Expenditures for reimbursed area technical education programs increased 170 percent from 1959 to 1961. The increase in Federal expenditures was 189 percent; in State expenditures, 160 percent; local expenditures, 156 percent. Table 14 shows the actual distribution of expenditures for the 3 years the program has been in existence.

Table 14.—Federal, State, and local expenditure for area technical education programs: United States, 1959, 1960, and 1961 [1]

Year	Total	Federal	State	Local
1959	$6,818,626	$2,745,995	$1,593,475	$2,479,156
1960	14,026,529	5,968,137	2,925,395	5,132,997
1961	18,406,045	7,913,197	4,148,321	6,344,527

[1] All data based on corresponding issues of *Digest of Annual Reports*, Division of Vocational and Technical Education, U.S. Office of Education.

In 1960–61 the expenditure was: Federal, 43 percent; State 22.5 percent; local, 34.5 percent. For every $1 of Federal funds, the State expenditure was $0.52 and local expenditure $0.80.

Table 15.—Percentage distribution of Federal, State, and local instructional expenditures for various programs of area-technical instruction, by type of program: United States, 1960–61 [1]

Instructional program	Total expenditure	Expenditure as percent of total		
		Federal	State	Local
ALL PROGRAMS	100.0	34.1	21.2	44.7
In-school youth (preparatory programs)	81.7	27.1	18.5	36.1
Out-of-school youth and adults (extension programs)	18.3	7.0	2.7	8.6

[1] Obtained from a special analysis of expenditures prepared by the Division of Vocational and Technical Education, U.S. Office of Education. (Expenditures for administration, supervision, and teacher training were deleted.)

Program Comparison, 1960–61

- In-school preparatory program:
  - 31.9 percent of the enrollment.
  - 81.7 percent of the instructional funds.
- Out-of-school extension program:
  - 68.1 percent of the enrollment.
  - 18.3 percent of the instructional funds.

Area Redevelopment and Manpower Development

The Area Redevelopment Act provided an allotment for training in 1961–62 which amounted to $2,881,000. This amount was, in turn, reallocated to approved projects in 34 States. These projects were related to training needs of individuals in areas designated as redevelopment areas; each project was approved individually. An estimated 10,439 trainees were involved in the redevelopment training program in 1961–62.

Funds provided for training under the provisions of the Manpower Development and Training Act of 1962 were $19 million for the year 1962–63. An additional $1 million was made available to provide for State supervision of programs conducted under the provisions of the act.

Summary

The total federally reimbursed vocational education program in the public schools for the year 1960–61 consisted of courses for in-school youth and out-of-school youth and adults in the following occupational categories: Agriculture, trades and industries, home economics, distribution, practical nursing and training for related health occupations, training for the fishing industry, and area technical education.

Total enrollment in all programs was 3,855,564. Enrollment of in-school youth amounted to approximately 48 percent of this figure and enrollment of out-of-school youth and adults, approximately 52 percent. Table 16 shows the enrollments and the relative percentage for each category of vocational education.

Table 16.—Number and percent of enrollees in federally reimbursed vocational education programs: United States, 1960–61 [1]

Occupational category	Preparatory programs		Extension programs	
	Enrollment	Percent	Enrollment	Percent
ALL CATEGORIES	1,862,710	100.0	1,992,854	100.0
Agriculture	462,756	24.8	342,566	17.2
Trades and industries	307,344	16.5	656,265	32.9
Home economics	981,109	52.7	629,225	31.6
Distribution	43,179	2.3	262,904	13.2
Practical nursing	29,098	1.6	18,166	.9
Fishery	0	0	(2,298)	[2](.1)
Technician	39,224	2.1	83,728	4.2

[1] All data based on corresponding issues of *Digest of Annual Reports*, Division of Vocational and Technical Education, U.S. Office of Education.

[2] Reported under enrollment for trades and industries.

A summary of instructional expenditures, prepared on the same comparative basis as for enrollment, showing the distribution of Federal instructional expenditures for 1960–61, is given in table 17.

Table 17.—Amount and percent of expenditures of Federal funds for vocational instructional costs by type of program: United States, 1960–61 [1]

Occupational category	Expenditure for in-school youth		Expenditure for out-of-school youth and adults	
	Amount	Percent	Amount	Percent
ALL PROGRAMS [2]...	$23,967,298	100.0	$7,512,498	100.0
Agriculture..................	8,166,519	34.1	1,645,376	21.9
Trades and industries..........	4,599,060	19.2	3,494,431	46.5
Home economics.............	4,966,239	20.7	1,103,750	14.7
Distribution.................	1,224,741	5.1	368,523	4.9
Practical nursing..............	2,483,754	10.4	135,556	1.8
Fishery.....................	0	0	105,911	1.4
Technician occupations........	2,526,985	10.5	658,951	8.8

[1] Obtained from a special analysis of instructional expenditures prepared by the Division of Vocational and Technical Education, U.S. Office of Education.

[2] Total instructional expenditure for in-school and out-of-school programs amounted to $31,479,796.

The enrollment and instructional funds for present occupational categories of federally aided vocational education are compared in table 18.

Table 18.—Percent of enrollment and instructional expenditure for federally reimbursed vocational programs for in-school and out-of-school youth and adults, by occupational category: United States, 1960–61 [1]

Occupational category	Programs for in-school youth		Programs for out-of-school youth and adults	
	Percent of enrollment	Percent of instructional expenditure	Percent of enrollment	Percent of instructional expenditure
Agriculture................	57.5	92.3	42.5	7.7
Trades and industries.......	31.9	80.2	68.1	19.8
Home economics...........	60.9	91.1	39.1	8.9
Distribution................	14.1	81.8	85.9	18.2
Practical nursing............	61.6	94.7	38.4	5.3
Fishery....................	0	0	100.0	100.0
Technician occupations......	31.9	81.7	68.1	18.3

[1] All data based on corresponding issues of *Digest of Annual Reports*, Division of Vocational and Technical Education, U.S. Office of Education.

CHAPTER 4

Areas of Service

THE AREAS OF SERVICE common to all the occupational categories of vocational education are: Occupational information, vocational guidance, supervision and teacher training, research, youth organizations, instructional materials, and administration.

The effectiveness of vocational education depends largely upon how well these services function in support of the instructional program.

Occupational Information and Vocational Guidance

The purpose of the vocational guidance program is to provide individuals with information and to develop the understanding necessary for wise decisions affecting vocational choices and adjustments.[1] The George-Barden Act authorized the use of Federal funds for the support of local vocational guidance programs. Only after an adequate State program had been developed, however, could funds be used locally. It was expected that the funds would enable States to:

1. Provide for supervision of vocational guidance.
2. Train vocational counselors.
3. Maintain a program of vocational counseling for the secondary and adult levels.
4. Produce and publish occupational information for vocational counselors and teachers.

Less than half the States (21) reported use of Federal funds for vocational guidance for the year 1960–61. Less than 1 percent (0.84) of the Federal money for vocational education was used for guidance. Table 19 shows the distribution of expenditures in 1960–61.

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[1] Office of Education, *Administration of Vocational Education*, Washington: U.S. Department of Health, Education, and Welfare, 1958, p. 20.

Table 19.—Vocational counseling and supervision of counselor training expenditures, as amount and percent of total expenditure, by source of funds: United States, 1960–61 [1]

Source of funds	Total expenditure		Counseling		Supervision and counselor training	
	Amount	Percent	Amount	Percent of total	Amount	Percent of total
ALL SOURCES	$1,608,167	100.0	$1,094,060	68.0	$514,109	32.0
Federal Government	399,742	24.9	199,316	12.4	200,426	12.5
State and local government	1,208,427	75.1	894,744	55.6	313,683	19.5

[1] All data based on corresponding issues of *Digest of Annual Reports*, Division of Vocational and Technical Education, U.S. Office of Education.

Expenditure of Federal funds for vocational guidance in the various substantive areas for 1960–61 was as follows:

Area	*Amount*	*Percent*
TOTAL	$399,742	100.0
Agricultural education	123,636	31.0
Trade and industrial education	128,687	32.2
Home economics education	100,995	25.1
Distributive education	46,424	11.7

Supervision and Teacher Training

Supervision and teacher training are closely related functions; the major purpose of supervision, the improvement of instruction, is largely inservice training of teachers. The federally reimbursed vocational education program has provided for both functions. The Smith-Hughes Act made a specific allocation of funds for teacher training; other vocational education acts have merely permitted this use of authorized appropriations, without specifying any amount for supervision and teacher training.

In 1960–61, nearly 4 million students were taught by thousands of vocational teachers in classes for in-school youth and in classes for out-of-school youth and adults. The distribution of funds for teacher training among the occupational categories was as follows: [2]

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[2] The actual number of teachers would be somewhat less than the number of teaching positions because an individual day-school teacher may also teach an evening class, or may otherwise have more than one teaching position.

Occupational category	*Number of teaching positions*	*Percent*
TOTAL	93, 579	100. 0
Agricultural education	20, 454	21. 9
Trade and industrial education	35, 226	37. 6
Home economics education	27, 029	28. 9
Practical nurse education	1, 855	2. 0
Distributive education	6, 882	7. 4
Area technical education	1, 725	1. 8
Counseling	408	0. 4

Analysis of Expenditures, 1950–61

During the 11 years from 1950 to 1961, enrollment in the vocational program increased 14.6 percent. Federal, State, and local expenditures for supervision and teacher training increased 69.5 percent. Expenditures for supervision and teacher training for each of 3 selected years during the 11-year period were as follows:

1950	$12, 926, 689
1955	15, 784, 527
1961	21, 620, 384

Table 20 shows the distribution among the various occupational categories of expenditures for supervision and teacher training funds in 1960–61.

Table 20.—Amount and percent of Federal, State, and local expenditures for supervision and teacher training, by occupational category: United States, 1960–61 [1]

Occupational category	Total expenditures		Federal expenditure		State and local expenditure	
	Amount	Percent	Amount	Percent	Amount	Percent
ALL CATEGORIES	$21,620,384	100.0	$8,747,951	40.5	$12,872,433	59.5
Agricultural education	5,550,577	25.7	2,128,349	9.8	3,422,228	15.9
Trade and industrial education	6,113,836	28.3	2,444,372	11.5	3,669,464	16.8
Home economics education	5,510,711	25.5	2,161,780	10.0	3,348,931	15.5
Distributive education	1,700,556	7.8	708,086	3.2	992,470	4.6
Practical nurse education	1,012,993	4.7	502,677	2.3	510,316	2.4
Area technical education	1,731,711	8.0	802,687	3.7	929,024	4.3

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[1] All data based on corresponding issues of *Digest of Annual Reports*, Division of Vocational and Technical Education, U.S. Office of Education.

State Organization for Teacher Training

Final responsibility for federally reimbursed teacher education programs rests with the State board for vocational education. Ways of meeting this responsibility vary from State to State. During the year 1960–61, 40 percent of the States carried out their teacher-training responsibility through existing teacher-education institutions; 38 percent of the States met the responsibility by the joint efforts of programs conducted by the State board for vocational education and by one or more teacher-education institutions; 19 percent followed a system which involved the State board for vocational education, a teacher-training institution, and a local board of education. The remaining 3 percent of the States followed combinations of these plans.

Programs of teacher education vary not only from State to State but also according to occupational category. Full-time teachers of agriculture, distributive education, and home economics usually complete the teacher-training requirement as a part of a baccalaureate degree program. Full-time teachers for the trades and industries, in contrast, are usually recruited from the occupations for which they will teach, with emphasis on the quality and duration of their occupational experience and inservice professional training. Formal education has been of secondary importance in selecting trade and industrial teachers; the trend, however, is toward increasing this requirement. Part-time instructors in the various phases of the federally reimbursed program of vocational education must also complete programs of teacher training, but such programs are generally much shorter than are required of the full-time teacher.

Although quality control for teacher training rests with the States, professional associations of vocational teacher educators have contributed immeasurably toward improving teacher-training programs. Over the years, too, the Vocational and Technical Education Division of the U.S. Office of Education has conducted regional and national conferences concerning teacher education and has otherwise stimulated the general improvement of teacher selection and training.

Research

It was the intent of Congress in 1917 that research at the Federal level be viewed as an integral part of the federally reimbursed program of vocational education. The funds appropriated by the Smith-Hughes Act were intended for several purposes which included "making studies, investigations, and reports to aid in the organization and conduct of vocational education."[3] The George-Barden Act (1946) provided specifically for research by the States.

The most recent administrative guide used by the States reads as follows:

> Expenditures may be made under the State plan for research that will function directly in the furtherance of any or all of the federally aided fields of vocational education, when such research is conducted as a part of a State program of administration, supervision, or teacher training.[4]

Responsibility for research in vocational education is shared jointly by the Division of Vocational and Technical Education of the U.S. Office of Education and by the States. The administrative guide identifies the responsibilities of the Division of Vocational and Technical Education as follows:

> Making, or causing to have made, studies, investigations, and reports for the purpose of assisting the States in the establishment of vocational schools and classes, in providing instruction in commerce and commercial pursuits, and in the several vocational fields for which Federal funds have been made available.[5]

The Federal Board for Vocational Education, and later the Office of Education, have published numerous reports of surveys, studies, investigations, and other research. These publications have been supplied to the States for their information and guidance. Studies in the various States have been conducted on a much smaller scale and with little general direction or coordination by the U.S. Office of Education.

Administration

The administration of vocational education at the Federal level was vested in the Federal Board for Vocational Education beginning in 1917. The Secretaries of Labor, Commerce, and Agriculture, and the U.S. Commissioner of Education were ex officio members of the Board. Three additional persons, representing agriculture, labor, and manufacturing and commerce, were appointed by the President and confirmed by the Senate. The Board was directly responsible to Congress. The general administration of its affairs was assigned to a director appointed by the Board.

The administrative structure of the Federal Board beginning in 1917 was essentially as shown in figure 7.

In 1933, the functions of the Federal Board for Vocational Education were assigned to the Department of the Interior, Office of

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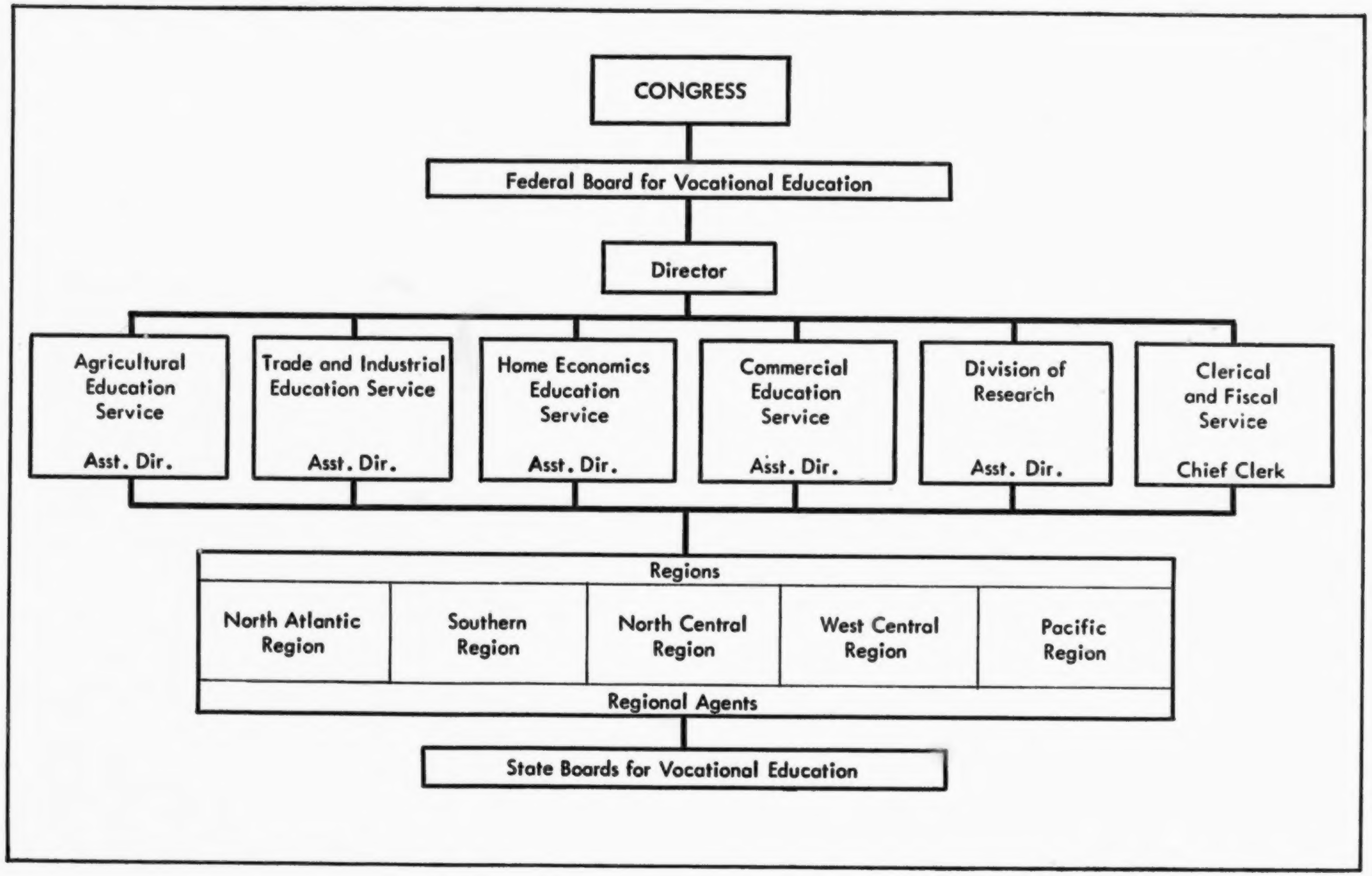
[3] Public Law 347, sec. 1, 64th Cong., *op. cit.*

[4] *Administration of Vocational Education, op. cit.*, p. 8.

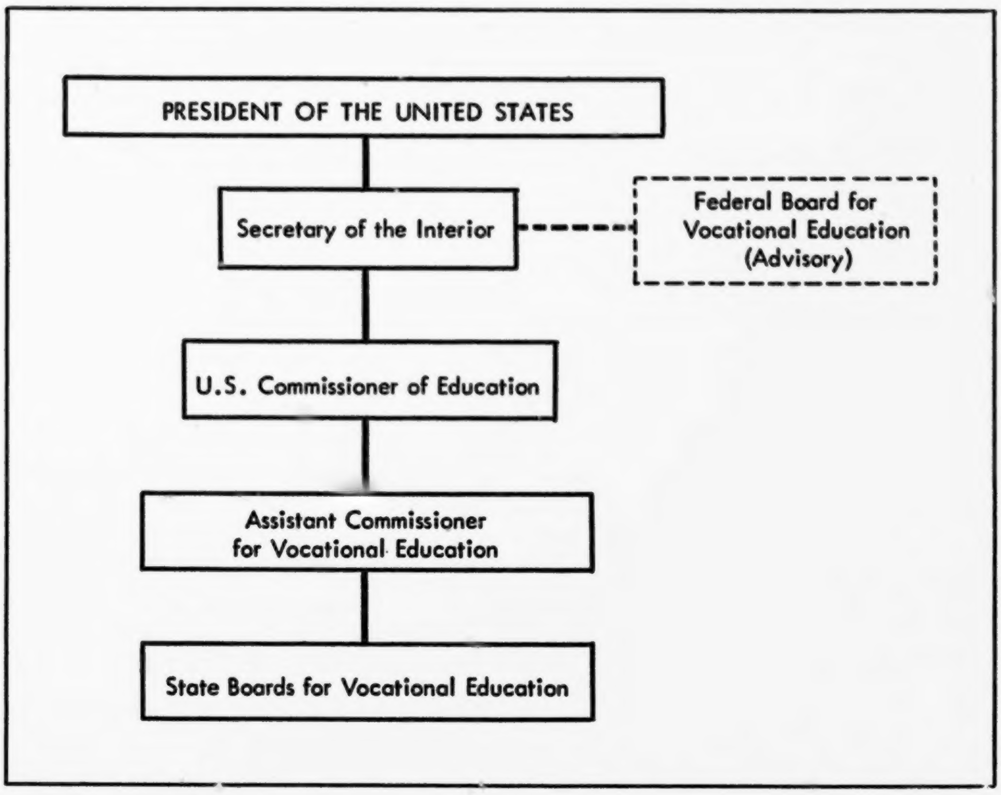
[5] *Ibid.*, p. 21.

Figure 7.—Administrative Structure for Vocational Education, 1917–33.


CONGRESS
Federal Board for Vocational Education
Director
Agricultural Education Service
Asst. Dir.
Trade and Industrial Education Service
Asst. Dir.
Home Economics Education Service
Asst. Dir.
Commercial Education Service
Asst. Dir.
Division of Research
Asst. Dir.
Clerical and Fiscal Service
Chief Clerk
Regions
North Atlantic Region
Southern Region
North Central Region
West Central Region
Pacific Region
Regional Agents
State Boards for Vocational Education

Education.[6] The Federal Board lost its administrative responsibility and functioned thereafter in an advisory capacity. The Director of the Board became an Assistant Commissioner of Education—with no change in duties but a considerable reduction in rank and salary—and was administratively responsible to the U.S. Commissioner of Education. The administrative structure from 1933 to 1946 was essentially as shown in figure 8.

Figure 8.—Administrative Structure for Vocational Education, 1933–46


PRESIDENT OF THE UNITED STATES
Secretary of the Interior
Federal Board for Vocational Education (Advisory)
U.S. Commissioner of Education
Assistant Commissioner for Vocational Education
State Boards for Vocational Education

In 1946, by Executive Order, the Federal Board for Vocational Education was abolished.[7] The present administrative structure (since April 1, 1962) is shown in figure 9.

Federal-State-Local Relationships

The contractual relationship between the Federal and State governments, to promote and develop programs of vocational education, was thought of as a partnership from the very beginning of discussions concerning Federal aid to the States. The partnership concept developed finally into a plan wherein each State set forth its own ideas

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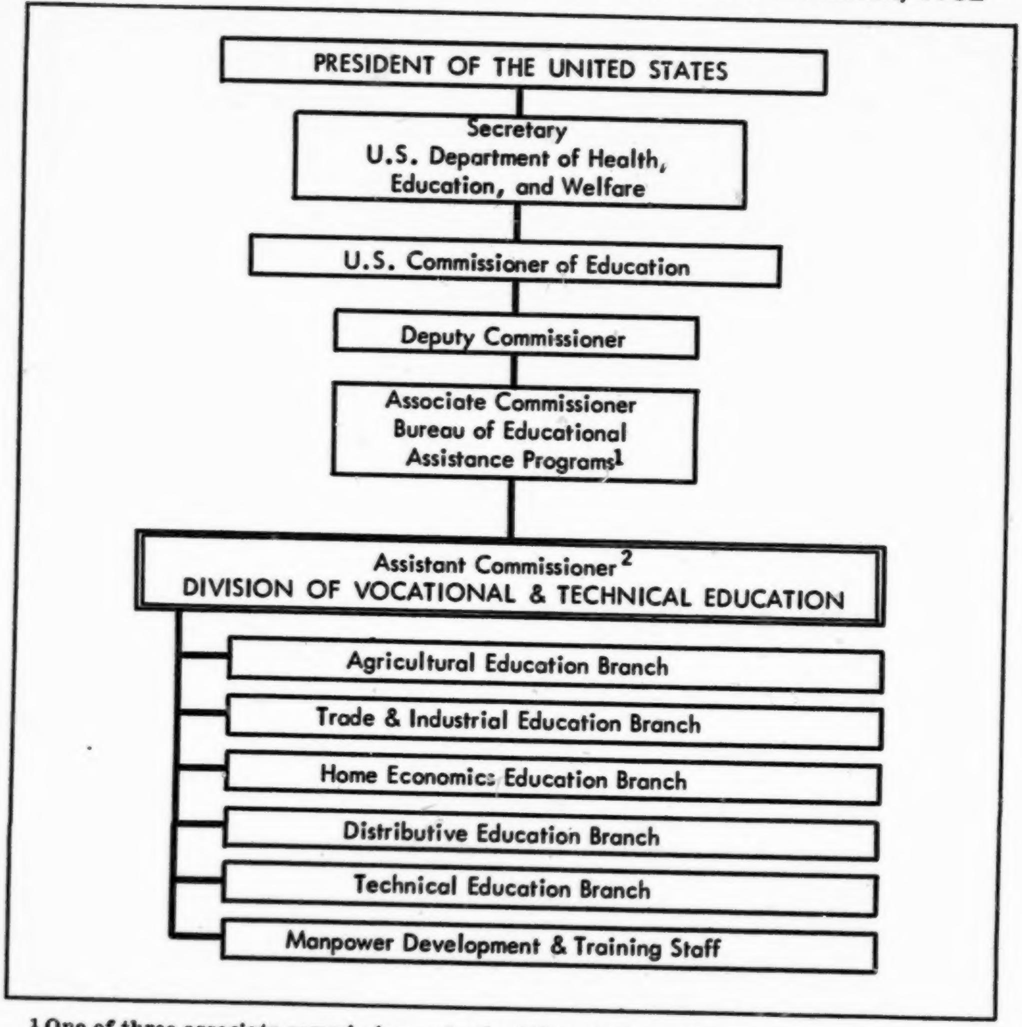
[6] By Executive Order 6166, June 10, 1933, cited in John Dale Russell, et al., *Vocational Education.* Washington: The Advisory Committee on Education, 1938, p. 28.

[7] *President's Reorganization Plan No. 2 of 1946,* July 16, 1946.

Figure 9.—Administrative Structure for Vocational Education, 1962


PRESIDENT OF THE UNITED STATES
Secretary
U.S. Department of Health, Education, and Welfare
U.S. Commissioner of Education
Deputy Commissioner
Associate Commissioner
Bureau of Educational Assistance Programs[1]
Assistant Commissioner[2]
DIVISION OF VOCATIONAL & TECHNICAL EDUCATION
Agricultural Education Branch
Trade & Industrial Education Branch
Home Economics Education Branch
Distributive Education Branch
Technical Education Branch
Manpower Development & Training Staff

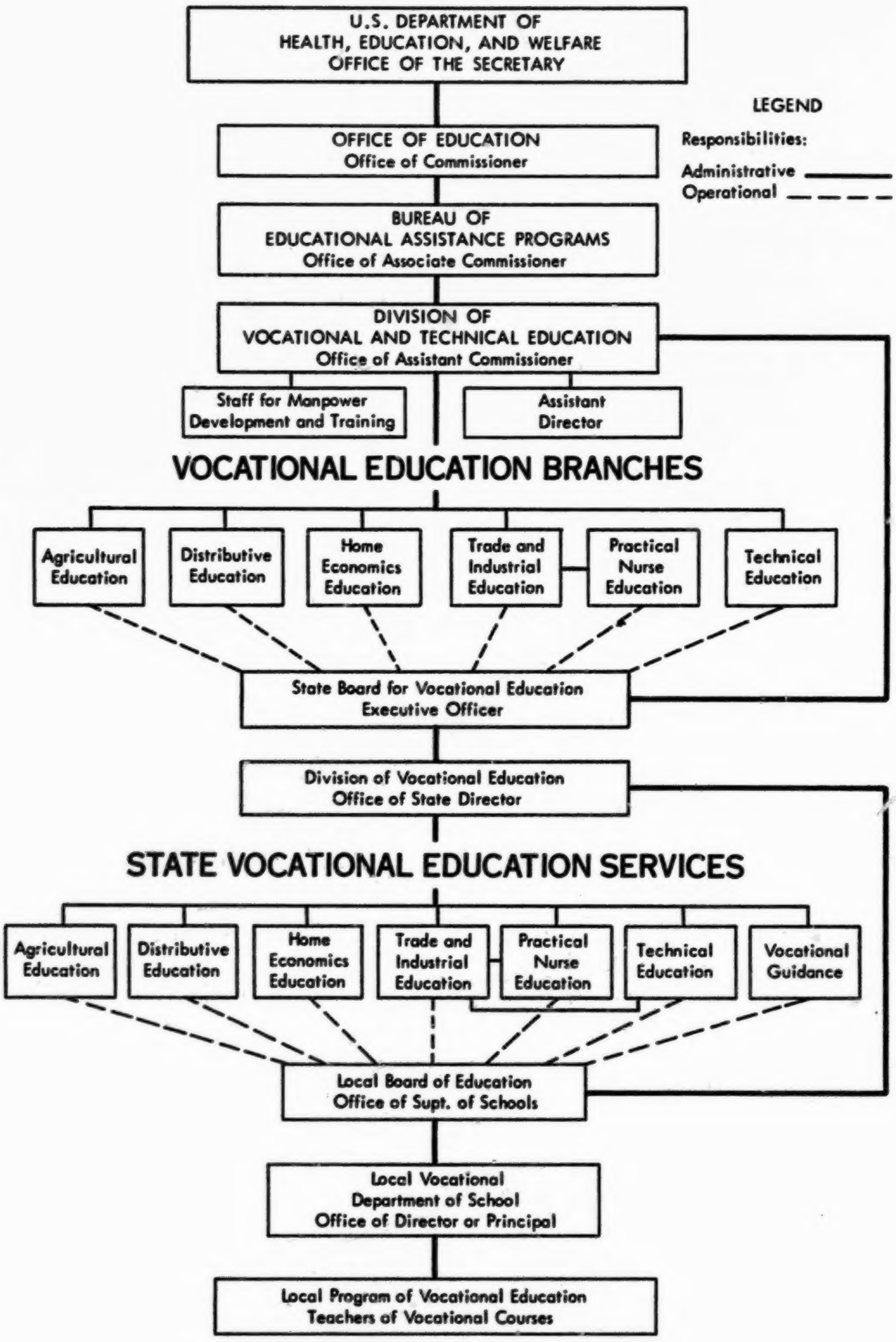
[1] One of three associate commissioners in the Office of Education.
[2] One of three assistant commissioners in the Office of Education.

about the operation of vocational education in the State concerned. The only requirement of the Federal Government with regard to the plan was that it show clearly that the State had observed the minimum requirements of the vocational education acts.

The State plan makes it possible for each State to develop its vocational programs with due regard for its own geographical, educational, economic, and social conditions, problems, and relationships. Since the Federal Government exercises minimum control over the vocational program in the States, the State plans provide the framework within which the Nation's program of vocational education is conducted.

The Federal, State, and local administrative structure for vocational education is shown in figure 10.

Figure 10.—Federal-State-Local Structure for Vocational Education, 1962


U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
OFFICE OF THE SECRETARY
LEGEND
Responsibilities:
Administrative
Operational
OFFICE OF EDUCATION
Office of Commissioner
BUREAU OF
EDUCATIONAL ASSISTANCE PROGRAMS
Office of Associate Commissioner
DIVISION OF
VOCATIONAL AND TECHNICAL EDUCATION
Office of Assistant Commissioner
Staff for Manpower Development and Training
Assistant Director
VOCATIONAL EDUCATION BRANCHES
Agricultural Education
Distributive Education
Home Economics Education
Trade and Industrial Education
Practical Nurse Education
Technical Education
State Board for Vocational Education
Executive Officer
Division of Vocational Education
Office of State Director
STATE VOCATIONAL EDUCATION SERVICES
Agricultural Education
Distributive Education
Home Economics Education
Trade and Industrial Education
Practical Nurse Education
Technical Education
Vocational Guidance
Local Board of Education
Office of Supt. of Schools
Local Vocational
Department of School
Office of Director or Principal
Local Program of Vocational Education
Teachers of Vocational Courses

Youth Organizations

Youth organizations, an integral part of the instructional program, are today considered a vital aspect of vocational education in the United States. National youth organizations have chapters located throughout the Nation and have extended their influence to foreign countries.

Future Farmers of America

The Future Farmers of America (FFA), established in 1928 as an organization for boys who study vocational agriculture in public secondary schools, is designed to stimulate boys to do better work in vocational agriculture. The New Farmers of America (NFA) is a similar program for Negro boys studying vocational agriculture. As the public schools are integrated, members of the NFA are becoming members of the FFA.

The FFA Foundation was incorporated in 1944. More than 300 business and industrial firms, organizations, and individuals contribute funds each year to sponsor an awards program for outstanding achievement in agriculture.

Future Homemakers of America

Future Homemakers of America (FHA) and New Homemakers of America (NHA) were organized in 1945 for junior and senior high school students studying home economics. Both are integral parts of the high school home economics program, with the goal of helping individuals improve personal, family, and community living. Since the Supreme Court decision of 1954, the FHA and NHA have moved toward one organization.

The program of study and discussion in FHA and NHA concerns education and employment, early marriage, family relationships, social acceptance and personal development, and youth's role in society and world understanding.

Distributive Education Clubs of America

DECA identifies the Distributive Education Clubs of America, a program of leadership and development for students enrolled in distributive education. Organized on a national basis in 1947, its purposes are to develop a respect for education in marketing and distribution which will contribute to vocational competence; to create an awareness of the responsibilities of citizenship in a free, competitive-enterprise system; and to assist State associations in the growth and development of DECA.

The DECA Foundation was established in 1960 for the purpose of receiving and disbursing funds for educational activities that stimulate and promote the best interests of DECA on a local, State, and national basis.

Trade and Industrial Student Organization

There is no national youth organization for students in trade and industrial education at the present time. In some States, students are encouraged to enroll in whatever State professional association is most closely related to their particular interest.

Late in 1962 establishment of a national youth organization for trade and industrial education was being considered by representatives of trade and industrial education, professional associations of education administrators, organized labor, management, and other appropriate groups.

Instructional Materials

Recognition of the need for the preparation of materials for use in vocational education classes dates back to the beginning of the federally aided program of vocational education. However, actual preparation of instructional materials has been sporadic and uncoordinated.

Efforts to supply needed instructional materials have been made by Federal, State, and local officials, and by individual instructors. The demand for such materials has always been greater than the supply.

To illustrate the problem,[8] in 1958 only 17 States had curriculum materials laboratories in trade and industrial education; 2 additional States reported having a person in charge of curriculum materials development. Materials were prepared for in-school trade courses and for out-of-school extension and apprenticeship courses. The States varied widely in their approach to the problems of preparation of instructional material. Those having instructional materials laboratories prepared occupational analyses, course outlines, courses of study, text materials, instructional aids (charts and flannel-board cards), and visual aids (filmstrips and motion pictures).

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[8] Adapted in part from Merle E. Strong, *An Investigation of Trade and Industrial Education Curriculum Materials Development and Curriculum Laboratories in the United States.* (Unpublished doctoral dissertation, the Ohio State University, 1958.)

Subsequently, with leadership from the Trade and Industrial Education Branch, Division of Vocational and Technical Education, U.S. Office of Education, national conferences were held for small groups of specialists in instructional materials development. These conference groups drafted a national plan for curriculum materials development, but it has never been financed or staffed.

Other occupational categories of vocational education have similarly studied their needs for instructional materials. Although much has been done in the way of study and planning, little actual progress has been made and the great needs for instructional material are still unmet.

Summary

The areas of service (occupational information and vocational guidance, supervision and teacher training, research, youth organizations, instructional materials, and administration) represent the quality controls of vocational education. The effectiveness with which vocational education meets its obligations to the Nation depends upon how well these services function in relation to the occupational categories. The present status of these service areas can be summarized as follows:

- **Less than half the States use less than 1 percent of the Federal vocational education funds for occupational information and vocational guidance.**
- **Although some provision is made in all of the occupational categories for supervision and teacher training, there is wide variety in the ways in which States meet their responsibilities.**
- **Limited research, studies, and investigations have been carried on at the Federal level since 1917 on various aspects of the vocational education program.**
- **Research by the various States has been sporadic and uncoordinated, and chiefly directed toward program operation.**
- **The administrative position of vocational education at the Federal level has changed in 45 years from direct responsibility to the President of the United States to the fourth level of administration in the Department of Health, Education, and Welfare.**

- **Youth organizations are integral parts of the programs of vocational education in agriculture, home economics, and distributive education. The youth program in agriculture is legislatively a part of agricultural education. The youth program in home economics is administratively a part of home economics education. A national program for youth in distributive occupations has an administrative staff apart from the Federal Government activities. A youth program for trade and industrial education is in the planning stage.**
- **Preparation of instructional materials for vocational education programs lags far behind actual need.**

Part II

Evaluation

We must strive for an aristocracy of achievement arising out of a democracy of opportunity.

—Thomas Jefferson

CHAPTER 5

Objectives and Standards

EVALUATION, the process of measuring effectiveness and efficiency, is concerned with whether the product or service leads to the results desired and whether it does so efficiently. Evaluation thus embraces appraisal of the end results as well as the functioning of the component parts. Just as the appraisal of an automobile involves finding out how well it provides the desired transportation, and how well each component part performs its task, the appraisal of an educational program inquires into the end results and how well the many components contribute to the whole.

Evaluation, like all measurement, implies standards of comparison. In the physical world a product is measured against standards which can be rigidly established—the breaking strength of a structural beam, the horsepower developed by an engine, the yield of an acre of corn, the attainment of a calculated orbit by a satellite. Without standards, the physical world would make little progress.

In the field of vocational education, the principle of evaluation is the same, but measurement is less exact. Objectives are established, and programs are measured in comparison with these objectives or standards. In the pages that follow, an attempt is made to state the objectives sought through vocational education programs, to indicate the component parts of the programs, together with their desired attainments, and generally to appraise programs and components in the light of these standards. The evaluative treatment is not exhaustive; not every aspect of the program is appraised from the standpoint of each of the objectives and standards.

In appraising overall occupational competency—knowledge and understanding, skills and abilities, attitudes and appreciations—one must keep in mind that much of what we learn comes from outside formal educational programs. Self-study, observation, conversations on the job and elsewhere, reflective thinking, and other means of learning, all contribute to occupational competency. Formal vocational education makes its contribution in specific areas and in its own ways. It is not expected to provide everything needed for occupational competency. This must be kept in mind when appraising vocational education programs.

It must be kept in mind also that many agencies outside the public education system offer formal programs developing occupational competency. Private vocational and technical schools, educational departments of business firms, industrial groups and unions, educational programs in other Government agencies, and many other programs all have a part. The Panel of Consultants recognizes these contributions. However, since its assignment is limited to public vocational education, the scope of its evaluation is similarly limited. This appraisal deals first with general achievements and shortcomings of the program as a whole, then with specific programs for youth and adults, and finally with the various services which support and make the program possible.

Basic Objectives

The appraisal of vocational education programs should consider their objectives and standards.

Every citizen should have the opportunity to attain occupational competencies compatible with his abilities and interests. Vocational education must be available to all people who have the need, desire, and ability to benefit from the instruction.

The size and scope of the vocational education program should meet the qualitative and quantitative needs of the Nation for trained workers, in a time of rapid technological change, economic growth, and international challenge. This requires a widely diversified program for in-school youth and out-of-school youth and adults, geared to the ever-changing occupational needs of the economy.

To attain these objectives, programs must be organized and operated to meet the following specific standards.

Program Standards

1. The vocational education program should be an integral part of the total public education program, rendering service and earning status commensurate with its significance to the community, the State, and the Nation.

a. Programs should be planned on the basis of statewide, regional, and national needs, with each vocational school, program unit, and curriculum offering planned to meet an appropriate part of the overall needs.

b. Programs should maintain, in addition to sound public relations efforts, effective functional relationships with employers, labor unions, and other agencies, through appropriate utilization of occupational advisory committees.

2. The vocational education program should offer opportunities to all youth and adults at appropriate levels in all occupational fields, including highly technical work of less than professional grade. It should be sufficiently flexible to meet the needs, not only of youth seeking occupational preparation as part of their high school education, but also of persons who desire full-time training, employed persons who desire preemployment training for one field while working in another, and those who desire training for updating and upgrading.

a. Effective programs of student recruitment and selection should be maintained, with admission standards appropriate for each curriculum or unit of the program.

b. Preemployment training programs should be provided at appropriate age and grade levels, commensurate with the learning abilities of the students and the maturity required for employment.

c. The needs of employed persons who desire updating, upgrading, and training for new occupations should be given attention commensurate with the growing importance of this type of education in a rapidly changing economy.

3. Vocational education programs should maintain a high level of quality through well-developed curriculums and courses of study, satisfactory and accessible facilities, up-to-date instructional equipment and materials, competent instructors employing good teaching methods, carefully selected students, and efficient administration and supervision.

a. Curriculums should provide for sufficient actual performance or simulated experiences in classrooms, laboratories, or shops and should include as much basic and general education as is appropriate for the age and grade level of the trainees. Preemployment curriculums should be of sufficient intensity and duration to prepare for effective entrance in the field of work for which the curriculum is designed.

b. The physical plant should be designed to meet the specific needs of the vocational education programs, sufficiently attractive to merit the respect of the community, and readily accessible to both full-time students and working persons.

c. Instructional equipment and materials should be based upon specific teaching needs and occupational requirements and should include programed learning and other new media of instruction.

d. Instructional staffs should have adequate teaching competencies based upon occupational experience, technical training, general education, and teacher training.

e. Effective vocational guidance service should be provided within the schools from which students are recruited and within the schools which provide vocational educational programs. Effective placement and followup service should be provided for graduates of preemployment programs, with the proportion of graduates who become successful in the fields of their training shown to be relatively high.

f. Administrative and supervisory services should be of a quality and amount sufficient to assure satisfactory operation of the various programs.

The Panel of Consultants believes that programs that measure high when set against these standards are good programs. The appraisal which follows attempts to indicate the strengths and weaknesses of public vocational education programs with these standards in mind.

The appraisal has not been as exhaustive as the Panel desired. Data are not available on many aspects of the program, and in some cases available data are not national in scope and are limited in other respects. Sufficient time was not available to make all the studies needed. However, the Panel believes that it has sufficient information concerning vocational education to draw valid conclusions.

The appraisal deals with the size and distribution of enrollment, the placement and earnings of graduates, the contributions to training needs in national emergencies, and the strengths and weaknesses of various aspects of the program. The Panel appraisal also considers achievements and limitations of vocational programs for high school youth, youth with special needs, post-high-school youth, out-of-school youth and adults, and the areas of service to vocational education.

CHAPTER 6

Achievements and Limitations

RECOGNIZING that achievements and limitations of vocational education depend upon a number of complex factors such as the degree of success in State programs in each of the vocational categories, nevertheless the Nation can justly take pride in the overall achievements of vocational education

The review which follows evaluates the achievements and limitations of vocational education from the standpoint of (*a*) enrollment and distribution, (*b*) placement and earnings of students, (*c*) contributions during national emergencies, and (*d*) contributions to international understanding.

Enrollment and Distribution

As a measure of vocational education, the enrollment and distribution of the program should be carefully considered. The total enrollment in the federally reimbursed vocational education program for the year ending June 30, 1961, was almost 4 million.[1] This included all students, in school and out of school, in all occupational categories of vocational education. The enrollment has increased approximately 2.3 percent per year since 1918. There have been periods of sharp increases in enrollment, such as immediately before and after World War II, and a sharp decrease during the period 1951–53. The increase in enrollment since 1953 has been approximately 2.8 percent per year. The range of the annual increase varies from approximately 1.86 percent (1959–60) to approximately 4.74 percent (1954–55). The enrollment in vocational education is subject to a number of major influences, among them (*a*) the general economic condition of the Nation; (*b*) war or national defense; and (*c*) the extent of Federal aid.

Among the States

Distribution of the enrollment by State is shown in table 21. Although the States with larger populations tend generally to have

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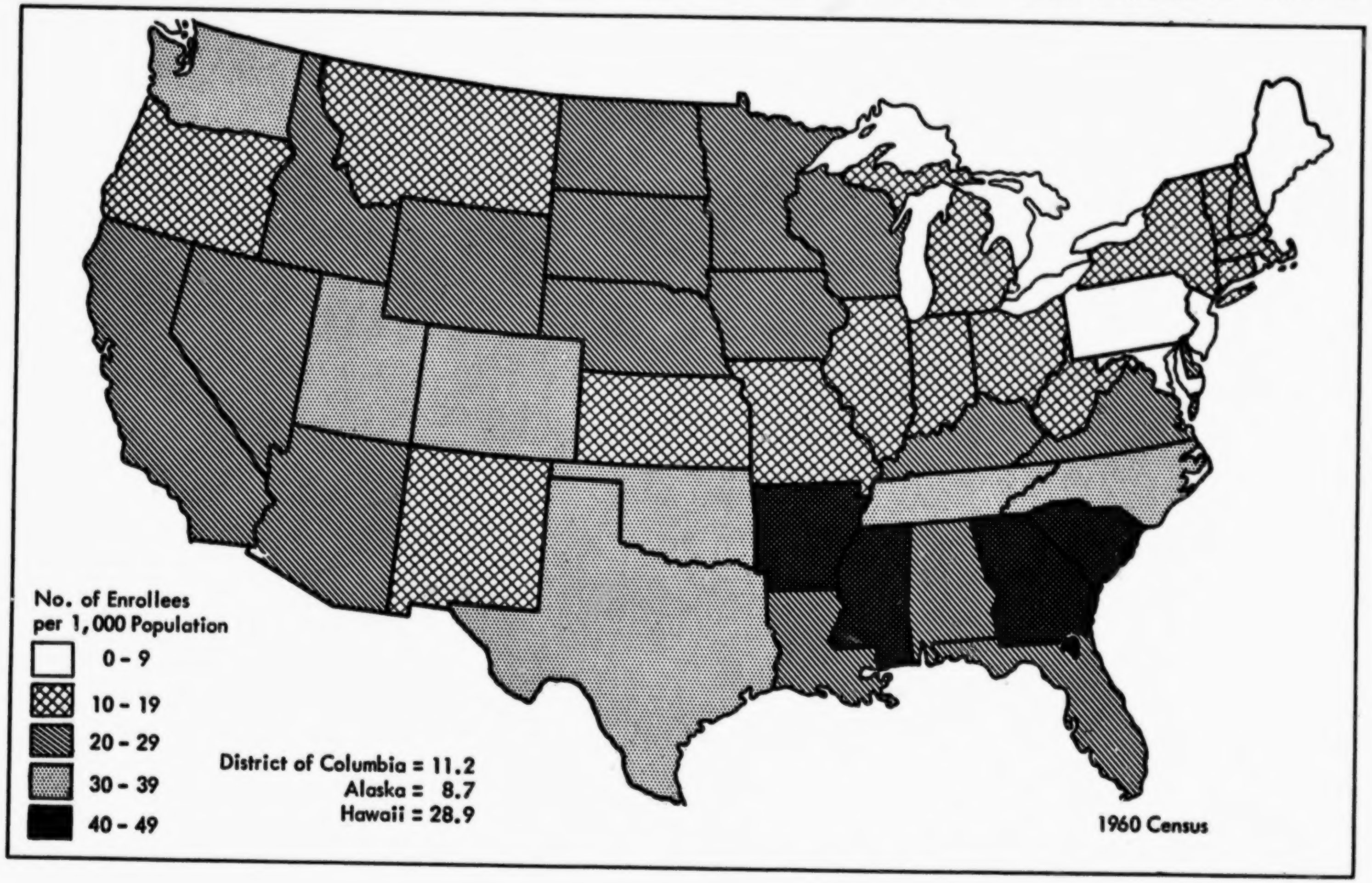
[1] 3,855,564. *Digest of Annual Reports*, 1961.

Figure 11.—Vocational Education Enrollment in the United States per 1,000 Population, 1960–61


No. of Enrollees per 1,000 Population
☐ 0 - 9
10 - 19
20 - 29
30 - 39
40 - 49
District of Columbia = 11.2
Alaska = 8.7
Hawaii = 28.9
1960 Census

larger total enrollments, the differences become significant only when some unit of comparison is used. As indicated in table 21, when total enrollment in vocational education is calculated per 1,000 population, the range by State varies from a low of 5.0 enrollees per 1,000 population to a high of 49.4. The national average is 21.1 per 1,000 population.

Table 21.—Total population, vocational education enrollment, and enrollment per 1,000 population, by State: United States, 1960–61

State	Population [1] (1960 census)	Enrollment [2] (1960–61)	Enrollment per 1,000 population
TOTAL	179,323,175	[3] 3,785,773	21.1
Alabama	3,266,740	97,018	29.9
Alaska	226,167	1,972	8.7
Arizona	1,302,161	27,859	21.3
Arkansas	1,786,272	88,175	49.4
California	15,717,204	438,753	27.9
Colorado	1,753,947	55,324	30.3
Connecticut	2,535,234	31,180	12.3
Delaware	446,292	10,314	23.1
District of Columbia	763,956	8,560	11.2
Florida	4,951,560	128,817	26.0
Georgia	3,943,116	158,860	40.2
Hawaii	632,772	18,259	28.9
Idaho	667,191	15,597	23.4
Illinois	10,081,158	113,376	11.3
Indiana	4,662,498	72,371	15.5
Iowa	2,757,537	62,466	22.6
Kansas	2,178,611	40,192	18.4
Kentucky	3,038,156	65,776	21.6
Louisiana	3,257,022	89,936	28.5
Maine	969,265	9,437	9.7
Maryland	3,100,689	25,707	8.3
Massachusetts	5,148,578	67,568	13.1
Michigan	7,823,194	136,160	17.4
Minnesota	3,413,864	94,117	27.6
Mississippi	2,178,141	96,078	44.0
Missouri	4,319,813	66,867	15.5
Montana	674,767	9,684	14.3
Nebraska	1,411,330	31,146	22.1
Nevada	285,278	7,574	26.5
New Hampshire	606,921	7,398	12.2
New Jersey	6,066,782	30,151	5.0
New Mexico	951,023	11,380	11.9
New York	16,782,304	187,984	11.2
North Carolina	4,556,155	143,377	31.5
North Dakota	632,446	16,239	26.7
Ohio	9,706,397	114,756	11.8

See footnotes at end of table.

Table 21.—Total population, vocational education enrollment, and enrollment per 1,000 population: United States, 1960–61—Continued

State	Population [1] (1960 census)	Enrollment [2] (1960–61)	Enrollment per 1,000 population
Oklahoma	2,328,284	73,205	31.4
Oregon	1,768,687	33,336	18.8
Pennsylvania	11,319,366	102,967	9.1
Rhode Island	859,488	8,484	9.9
South Carolina	2,382,594	109,773	46.0
South Dakota	680,514	13,635	20.0
Tennessee	3,567,089	110,330	30.8
Texas	9,579,677	366,434	38.3
Utah	890,627	27,104	30.0
Vermont	389,881	6,195	15.9
Virginia	3,966,949	106,864	26.9
Washington	2,853,214	106,309	37.9
West Virginia	1,860,421	31,370	16.8
Wisconsin	3,951,777	102,446	26.0
Wyoming	330,066	6,893	20.9

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[1] Bureau of the Census, *U.S. Census of Population, 1960*, Washington: U.S. Department of Commerce, 1962, table 55, pp. 1–163, vol. PC(1)1B U.S.

[2] *Digest of Annual Reports, 1962.*

[3] Excludes 1,643 Guam, 67,011 Puerto Rico, 1,137 Virgin Islands.

Enrollment in the five States with the largest population varies as follows:

Large States:	Enrollment per 1,000 population
New York	11.2
California	27.9
Pennsylvania	9.1
Illinois	11.3
Ohio	11.8

The five States with the smallest populations show variations as follows:

Small States:	Enrollment per 1,000 population
Alaska	8.7
Nevada	26.5
Wyoming	20.9
Vermont	15.9
Delaware	23.1

Despite inherent inadequacies of the comparison, it is evident that the States exhibit extreme differences in the extent of instruction in vocational education. Since such data are adequate only for rough generalizations, parameters must be found for which comparable data are available. For example, a large proportion of the in-school youth in trade and industrial education is in the 11th and 12th grades of high school. In Florida the number of in-school youth in trade and industrial education represents 15 percent of the total enrollment in the 11th and 12th grades. A similar comparison shows that the enrollment in trade and industrial education in Nebraska is 1.5 percent of the 11th and 12 grades. (The national average is 7.1 percent.)[2]

These comparisons are also subject to a number of variations, exceptions, and special conditions. For example, it is not known how many of the in-school enrollees in trade and industrial education are in the 11th and 12th grades, since enrollment is not restricted to these grades. Finally, adequate data for comparative purposes on a national basis are not available. It is necessary, therefore, to use data which only approximate the groups under consideration.

In-School Youth

A significant proportion of the 15–19 age group is enrolled in school, and population data for this age range are available.[3] The population of this age group was used for comparison with the enrollments of in-school youth in agricultural education, trade and industrial education, home economics education, and distributive education. These data are shown in table 22 and in figures 12, 13, and 14.

Trade and industrial enrollments expressed as a percentage of the 15–19-year age group are shown in table 22 and in figure 13. This percentage varies from a high of 4.2 percent (Florida) to a low of 0.49 percent (Nebraska). Nationally, 2 percent of the 15–19-year age group were preparing for employment in trade and industrial occupations. Approximately 31 percent of the labor force in 1961 was composed of craftsmen, foremen, operatives, and kindred workers.[4] Assuming that the percentages are representative of persons who actually enter the labor force, it can be concluded that the contribution to the labor force of trade and industrial programs for in-school youth is small in comparison to employment.

Preparation of in-school youth for employment in distributive occupations is extremely small in comparison with potential employment. Employment of sales workers in 1961 represented nearly 6.7 percent of the employed workers,[4] and the sales force represents only a part of the distributive field. Distributive education enrollment as a percentage of the 15–19-year age group is shown in table 22 and figure 14. The range is from a high of 0.79 percent (Virginia) to a low of 0.01 percent (Maine). However, Federal funds for distributive education are available only for school-work programs and for employed workers.

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[2] Estimates based on *Digest of Annual Reports* and *Preliminary Statistics of State School Systems, 1959–60*. Circular No. 663. Washington: U.S. Department of Health, Education, and Welfare, July 1961, p. 6.

[3] This age range (15–19) bears a close relationship to the age range of in-school youth, and census data for it are more readily available than for other age ranges.

[4] *Statistical Abstract of the United States*, 1962, *op. cit.*, p. 226.

Figure 12.—Proportion of U.S. Population Aged 15–19 Enrolled in High School Vocational Agriculture, 1960–61

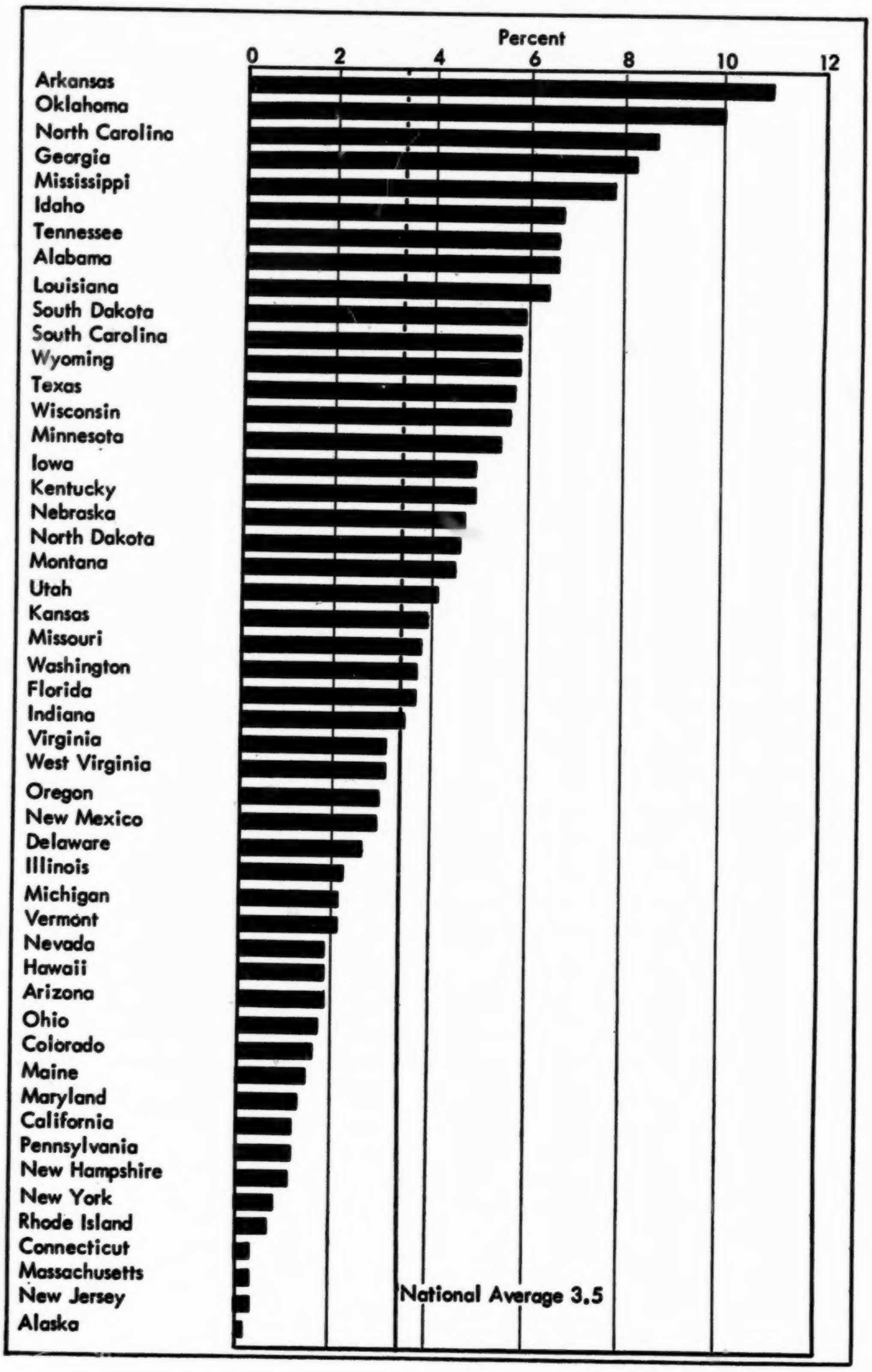

Table 22.—Number and percent of in-school youth in Smith-Hughes and George-Barden (titles I and II) programs of vocational education, as a percentage of the total population 15–19 years of age: United States, 1960–61 [1]

State	Total population 15–19 years	Total enrollment Smith-Hughes and George-Barden Title I and II		Agricultural education		Trade and industrial education [2]		Home economics education		Distributive education [3]	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
ALL STATES....	13,219,243	1,712,322	13.0	456,221	3.5	263,171	2.0	950,506	7.2	42,424	0.3
Alabama	279,481	48,284	17.3	18,446	6.6	2,997	1.1	26,164	9.4	677	.2
Alaska	17,199	1,336	7.8	29	.2	88	.5	1,175	6.8	44	.3
Arizona	100,676	14,856	14.8	1,780	1.8	1,979	2.0	10,827	10.8	270	.3
Arkansas	151,155	45,046	29.8	17,355	11.1	1,449	1.0	25,669	17.7	573	.4
California	1,096,022	88,248	8.1	13,442	1.2	24,346	2.2	48,557	4.4	1,903	.2
Colorado	130,726	11,945	9.1	2,101	1.6	2,494	1.9	6,814	5.2	536	.4
Connecticut	170,411	10,513	6.2	508	.3	5,484	3.2	4,169	2.4	352	.2
Delaware	30,199	5,453	18.1	790	2.6	568	1.9	3,930	13.0	165	.5
District of Columbia	49,382	2,973	6.0	0	0	1,566	3.2	1,309	2.7	98	.2
Florida	337,487	68,221	20.2	12,411	3.7	14,151	4.2	41,127	12.2	532	.2
Georgia	331,554	90,625	27.3	26,982	8.1	5,685	1.7	57,198	17.3	760	.2
Hawaii	54,821	8,491	15.5	1,000	1.8	1,367	2.5	5,914	10.8	210	.4
Idaho	55,188	11,007	19.9	3,716	6.7	582	1.1	6,574	11.9	135	.2
Illinois	686,563	59,826	8.7	15,005	2.2	7,083	1.0	36,143	5.3	1,595	.2
Indiana	345,357	47,927	13.9	11,692	3.4	2,967	.9	32,860	9.5	408	.1
Iowa	202,940	26,713	13.2	10,069	4.9	1,263	.6	14,895	7.3	486	.2
Kansas	157,370	17,990	11.4	6,143	3.9	1,825	1.2	9,680	6.2	342	.2
Kentucky	253,729	43,868	17.3	12,614	5.0	4,637	1.8	25,854	10.2	763	.3
Louisiana	261,762	61,837	23.6	16,773	6.4	7,550	2.9	36,608	14.0	906	.3
Maine	75,089	5,995	8.0	1,101	1.5	945	1.3	3,935	5.3	14	(*)

See footnotes at end of table.

Table 22.—Number and percent of in-school youth in Smith-Hughes and George-Barden (titles I and II) programs of vocational education, as a percentage of the total population 15–19 years of age: United States, 1960–61 [1]—Continued

State	Total population 15–19 years	Total enrollment Smith-Hughes and George-Barden Title I and II		Agricultural education		Trade and industrial education[2]		Home economics education		Distributive education[3]	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Maryland	225,810	10,954	4.9	3,001	1.3	4,390	1.9	3,181	1.4	382	.2
Massachusetts	361,938	16,761	4.6	1,176	.3	13,114	3.6	2,070	.6	401	.1
Michigan	564,128	59,417	10.5	12,099	2.1	6,547	1.2	37,899	6.7	2,872	.5
Minnesota	251,352	37,857	15.1	13,787	5.5	3,185	1.3	20,316	8.1	569	.2
Mississippi	196,694	55,048	28.0	15,464	7.9	3,815	1.9	35,255	17.9	514	.3
Missouri	308,322	40,723	13.2	11,746	3.8	3,336	1.1	24,155	7.8	1,486	.5
Montana	50,767	6,099	12.0	2,264	4.5	481	.9	3,180	6.3	174	.3
Nebraska	100,283	13,075	13.0	4,769	4.8	490	.5	7,549	7.5	267	.3
Nevada	19,196	2,764	14.4	339	1.8	237	1.2	2,055	10.7	133	.7
New Hampshire	44,360	4,536	10.2	468	1.1	467	1.1	3,553	8.0	48	.1
New Jersey	396,363	10,921	2.8	1,191	.3	6,650	1.7	2,448	.6	632	.1
New Mexico	76,236	8,694	11.4	2,221	2.9	653	.9	5,341	7.0	479	.6
New York	1,093,562	78,638	7.2	8,922	.8	43,573	4.0	19,753	.8	6,390	.6
North Carolina	408,133	92,832	22.7	35,596	8.7	7,808	1.9	47,641	11.7	1,787	.4
North Dakota	51,930	8,501	16.4	2,397	4.6	599	1.2	5,341	10.3	164	.3
Ohio	676,021	38,441	5.7	11,330	1.7	5,018	.7	21,061	3.1	1,032	.2
Oklahoma	184,053	46,300	25.2	18,378	10.0	4,393	2.4	22,556	12.3	973	.5
Oregon	130,131	11,591	8.9	3,953	3.0	879	.7	5,974	4.6	785	.6
Pennsylvania	799,536	48,535	6.1	9,918	1.2	23,002	2.9	14,275	1.8	1,340	.2
Rhode Island	63,207	3,716	5.9	452	.7	1,360	2.2	1,880	3.0	24	(*)
South Carolina	228,819	40,131	17.5	13,256	5.8	4,705	2.1	21,082	9.2	1,088	.4
South Dakota	52,065	9,200	17.7	3,086	5.9	426	.8	5,524	10.6	164	.3

Tennessee	296,957	72,648	24.5	19,715	6.6	7,167	2.4	45,157	15.2	609	.2
Texas	746,429	149,101	20.0	42,548	5.7	10,395	1.4	90,982	12.2	5,176	.7
Utah	76,216	10,062	13.2	3,095	4.1	1,586	2.1	4,974	6.5	407	.5
Vermont	31,717	3,672	11.6	660	2.1	689	2.2	2,253	7.1	70	.2
Virginia	324,407	65,596	20.2	12,676	3.1	6,144	1.9	44,217	13.7	2,559	.8
Washington	208,575	39,026	18.7	7,660	3.7	5,401	2.6	25,213	12.2	752	.4
West Virginia	156,454	19,604	12.5	4,928	3.1	3,688	2.4	10,738	6.9	250	.2
Wisconsin	283,877	31,891	11.2	15,747	5.5	3,467	1.2	12,677	4.5	0	0
Wyoming	24,594	4,834	19.7	1,422	5.8	480	2.0	2,804	11.4	128	.5

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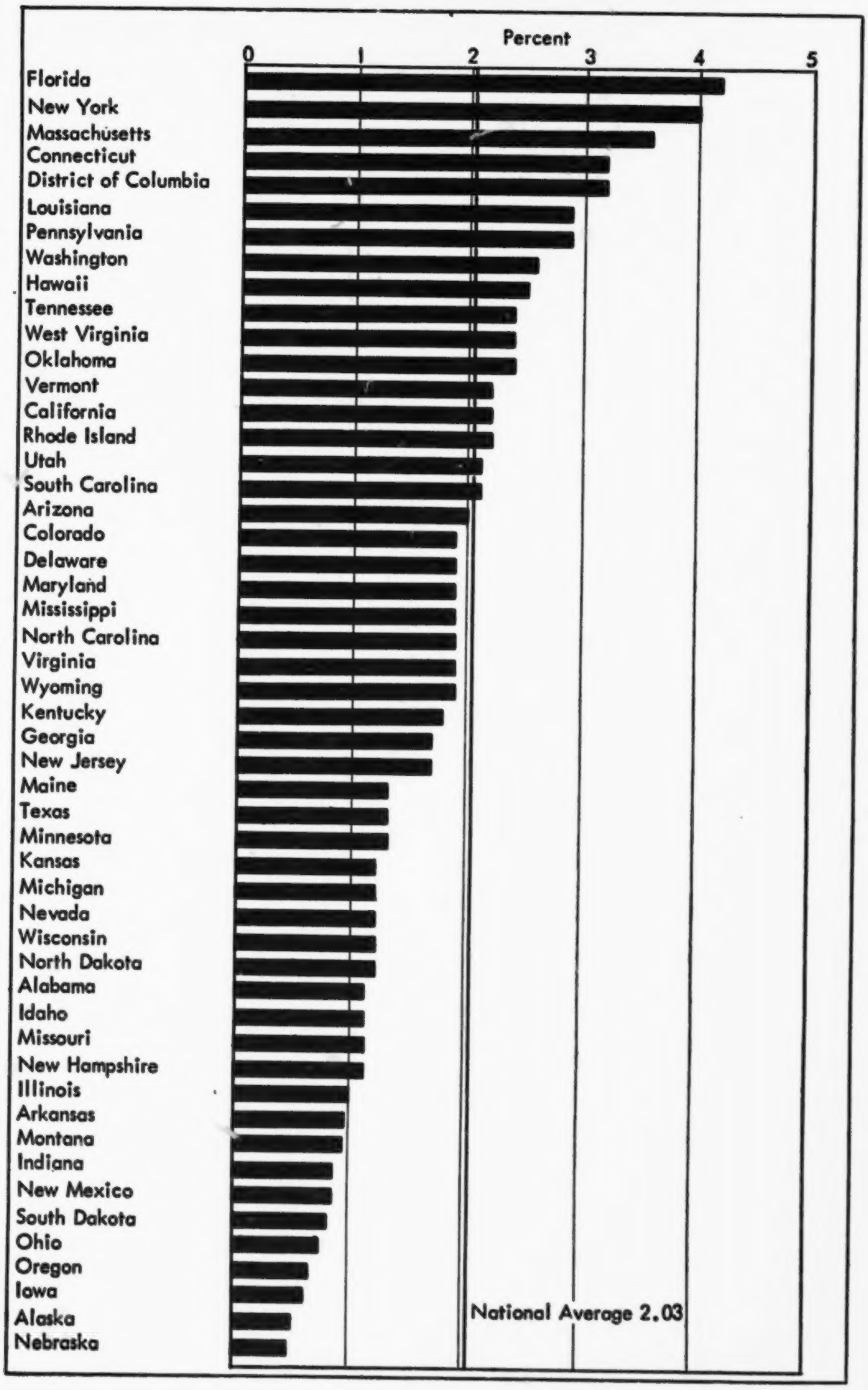
* Less than 0.05.

[1] Total population figures from *United States Census of Population: 1960*, PC(1)1B U.S. (Washington: U.S. Government Printing Office, 1961), table 45, p. 1-146, and table 59, p. 1-167-1-172. Enrollment figures from *Digest of Annual Reports of State Boards for Vocational Education, 1961* (Washington: U.S. Government Printing Office, 1962), tables 13, 16, 19, 22, omitting Guam, Puerto Rico, and the Virgin Islands.

[2] Day class enrollments only.

[3] Cooperative part-time class enrollments.

Figure 13.—Proportion of U.S. Population Aged 15–19 Enrolled in High School Trade and Industrial Education, 1960–61



Enrollment was calculated in vocational agriculture as a percentage of the total population per State in the 15–19-year age range. The national average was 3.5 percent and the student enrollment range was from 11.1 (Arkansas) to 0.17 percent (Alaska). The differences among the States are approximate measures of the availability of agricultural education.

The base for comparison of agricultural education was changed from *all youth* 15–19 years of age to *rural males* 15–19 years of age to determine what effect the change of base would have on the rank order of the States, with the following result:

	Rank order total population 15–19 years	*Rank order rural males 15–19 years*
First 5 States:		
Arkansas	1	3
Oklahoma	2	1
North Carolina	3	9
Georgia	4	5
Mississippi	5	14
Last 5 States:		
Rhode Island	46	38
Connecticut	47	49
Massachusetts	48	47
New Jersey	49	45
Alaska	50	50

Change of the base for comparison does influence the rank order. It is probable that using the population of rural males provides a better comparison. However, the Panel's concern is the extent to which vocational education serves *all* in-school youth. Therefore, the comparative base of total population, 15–19 years of age, was retained and the complexities which influence the rank order were ignored.

Table 22 and figure 12 show that there are extreme variations among the States in the extent to which agricultural education is available to youth in the 15–19-year age group. Persons employed in the production phases of agriculture represented approximately 8.2 percent of the total number of persons employed in 1961.[4] A question might be raised concerning the extent to which some States are providing sufficient agricultural education to meet employment requirements.

Out-of-School Youth and Adults

The vocational education enrollment of out-of-school youth and adults was compared to the total age group 20–64 years. This age group of 93,758,179 represents approximately 52.1 percent of the total population. Selection of this age group for comparative purposes has some limitations. Many persons who are employed are outside this age group, and vocational education serves them also. There are no upper age restrictions for enrollment in vocational education classes,

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[4] Ibid., p. 226.

Table 23.—Enrollment of out-of-school youth in Smith-Hughes and George-Barden (titles I and II) programs of vocational education, per 1,000 total population 20–64 years of age: United States, 1960–61 [1]

State	Total population 20–64 years	Total enrollment Smith-Hughes and George-Barden title I and II		Agricultural education		Trade and Industrial education		Home ecomonics education		Distributive education	
		Number	Per 1,000 population	Number	Per 1,000 population	Number	Per 1,000 population	Number	Per 1,000 population	Number	Per 1,000 population
ALL STATES	93,758,179	1,885 060	20.1	338,013	3.6	667,314	7.1	622,643	6.6	257,090	2.7
Alabama	1,617,560	42,560	26.3	17,406	10.8	19,427	12.0	5,027	3.1	700	0.4
Alaska	123,279	603	4.9	0	0	440	3.6	137	1.1	26	.2
Arizona	658,464	11,426	17.4	121	.2	7,253	11.0	2,094	3.2	1,958	3.0
Arkansas	871,086	40,990	47.1	9,433	10.8	8,937	10.3	21,001	24.1	1,619	1.9
California	8,481,283	309,459	36.5	4,745	.6	109,269	12.9	98,898	11.7	96,547	11.4
Colorado	896,003	40,632	45.3	881	1.0	18,526	25.0	14,096	19.6	7,129	9.7
Connecticut	1,374,934	12,077	8.8	439	.3	10,162	7.4	1,297	.9	179	.1
Delaware	236,780	4,074	17.2	81	.3	3,248	13.7	200	.8	545	2.3
District of Columbia	451,759	4,708	10.4	0	0	1,603	3.5	2,006	4.4	1,099	2.4
Florida	2,594,130	55,207	21.3	1,874	.7	20,961	8.1	21,101	8.1	11,271	4.3
Georgia	1,997,152	65,097	32.6	16,077	8.0	19,814	9.9	22,952	11.5	6,254	3.1
Hawaii	331,031	9,342	28.2	1,114	3.4	4,095	12.4	937	2.8	3,196	9.7
Idaho	322,296	3,602	11.2	790	2.5	2,151	6.7	331	1.0	330	1.0
Illinois	5,418,254	50,153	9.3	10,871	2.0	21,132	3.9	14,710	2.7	3,440	.6
Indiana	2,390,054	22,392	9.4	6,243	2.6	10,743	4.5	3,370	1.4	2,036	.8
Iowa	1,369,060	34,078	24.9	14,562	10.6	9,757	7.1	8,000	5.8	1,759	1.3
Kansas	1,108,660	20,060	18.1	1,209	1.1	8,519	7.7	5,333	4.8	4,999	4.5
Kentucky	1,512,347	20,994	13.9	6,938	4.6	6,064	4.0	6,065	4.0	1,927	1.3
Louisiana	1,605,677	23,895	14.9	8,054	5.0	8,733	5.4	5,123	3.2	1,985	1.2
Maine	486,654	3,144	6.5	285	.6	2,717	5.6	142	.3	0	0

Maryland	1,655,767	14,138	8.5	534	.3	6,294	3.8	6,891	4.2	419	.3
Massachusetts	2,734,198	47,580	17.4	494	.2	12,249	4.4	32,370	11.7	2,467	.9
Michigan	4,029,086	68,650	17.0	4,464	1.1	35,304	8.8	19,068	4.7	9,814	2.4
Minnesota	1,686,796	51,126	30.3	13,703	8.1	15,177	9.0	18,451	10.9	3,795	2.2
Mississippi	1,011,148	38,115	37.7	27,456	27.2	3,027	3.0	2,144	2.1	5,488	5.4
Missouri	2,243,112	22,953	10.2	5,386	2.4	6,921	3.1	5,622	2.5	5,024	2.2
Montana	331,388	3,286	9.9	1,012	3.1	1,845	5.6	405	1.2	24	.1
Nebraska	711,066	17,147	24.1	2,291	3.2	5,519	7.8	8,253	11.6	1,084	1.5
Nevada	160,666	3,333	20.7	68	.4	2,006	12.5	1,055	6.6	204	1.3
New Hampshire	312,347	1,978	6.3	41	.1	958	3.1	718	2.3	261	.8
New Jersey	3,361,216	13,597	4.0	613	.2	11,199	3.3	1,654	.5	131	(*)
New Mexico	462,828	2,173	4.7	0	0	1,439	3.1	413	.9	321	.7
New York	9,374,081	102,781	11.0	1,172	.1	59,210	6.3	39,106	4.2	3,293	.4
North Carolina	2,314,748	46,114	19.9	18,150	7.8	11,457	5.0	10,561	4.6	5,946	2.6
North Dakota	304,240	7,309	24.0	1,411	4.8	2,336	7.7	3,276	10.8	226	.7
Ohio	5,054,716	73,919	14.6	10,394	2.0	38,649	7.6	15,993	3.2	7,883	1.6
Oklahoma	1,197,681	22,514	18.8	9,323	7.8	6,599	5.5	5,241	4.4	1,351	1.1
Oregon	909,614	20,201	22.2	993	1.1	6,791	7.5	11,087	12.2	1,330	1.5
Pennsylvania	6,096,215	45,720	7.5	3,618	.6	17,500	2.9	19,993	3.3	4,609	.8
Rhode Island	462,913	4,283	9.3	0	0	3,027	6.5	1,256	2.7	0	0
South Carolina	1,153,048	68,627	59.5	26,756	23.0	5,240	4.5	34,718	30.1	1,913	1.7
South Dakota	328,454	4,247	12.9	1,794	5.5	1,945	5.9	0	0	508	1.5
Tennessee	1,833,251	34,479	18.8	3,771	2.1	8,178	4.5	19,730	10.8	2,800	1.5
Texas	4,915,623	205,575	41.8	82,994	16.9	27,895	5.7	68,472	13.9	26,214	5.3
Utah	420,162	16,300	38.8	797	1.9	4,088	9.7	7,499	17.8	3,916	9.3
Vermont	191,822	1,965	10.2	370	1.9	1,109	5.8	416	2.2	70	.4
Virginia	2,084,906	38,779	18.6	10,512	4.9	13,747	6.6	3,818	1.8	10,702	5.1
Washington	1,473,400	55,665	37.8	867	.6	32,896	22.3	18,189	12.3	3,713	2.5
West Virginia	932,973	11,061	11.9	752	.8	5,321	5.7	3,415	3.7	1,573	1.7
Wisconsin	1,996,061	65,938	33.0	6,841	3.4	24,836	12.4	29,296	14.7	4,965	2.5
Wyoming	168,190	2,014	12.0	253	1.5	1,001	6.0	713	4.2	47	.3

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*Less than 0.05.

[1] Population figures from *United States Census of Population: 1960*, (Washington: U.S. Government Printing Office, 1961), tables 45 and 59. Enrollments from *Digest of Annual Reports of State Boards for Vocational Education, 1961* (Washington: U.S. Government Printing Office, 1962), tables 13, 16, 19, 22, omitting Guam, Puerto Rico, and Virgin Islands.

Figure 14.—Proportion of U.S. Population Aged 15–19 Enrolled in High School Distributive Education, 1960–61

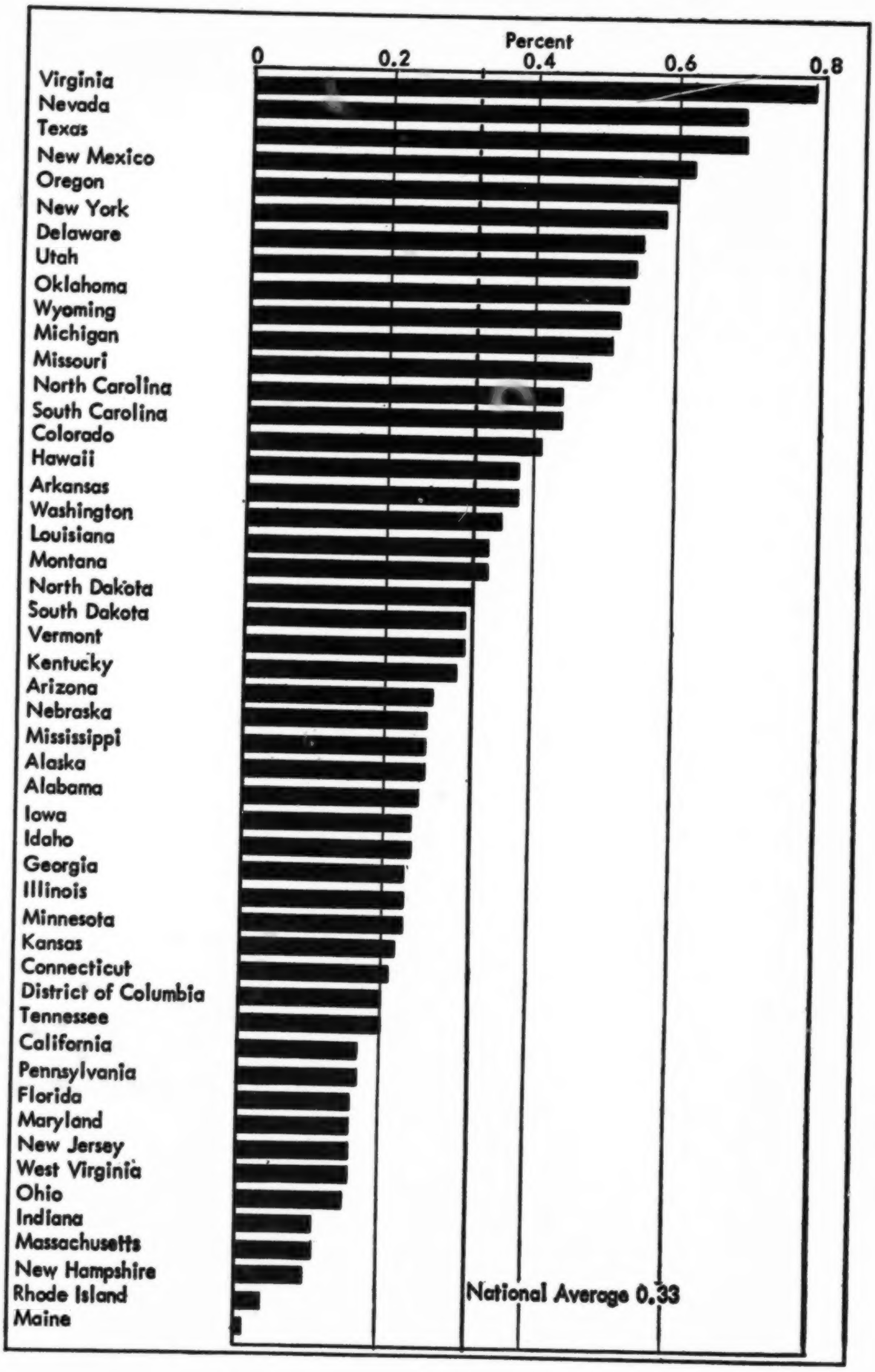


Figure 15.—Proportion of U.S. Population Aged 20–64 Enrolled in Adult Programs of Vocational Agriculture, 1960–61

Enrollment per 1,000 population 20–64 years of age

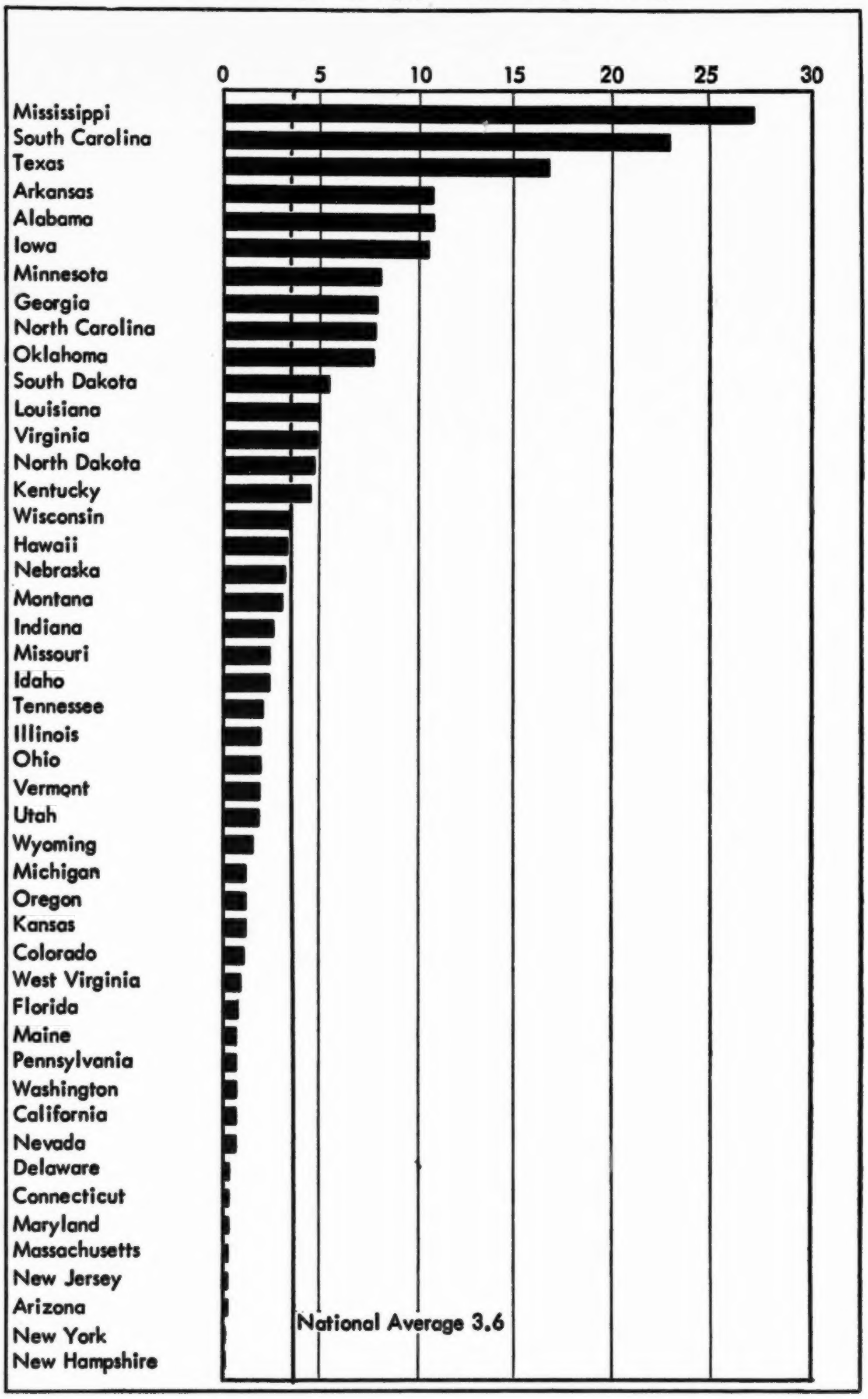


Figure 16.—Proportion of U.S. Population Aged 20–64 Enrolled in Adult Programs of Trade and Industrial Education, 1960–61

Enrollment per 1,000 population 20–64 years of age

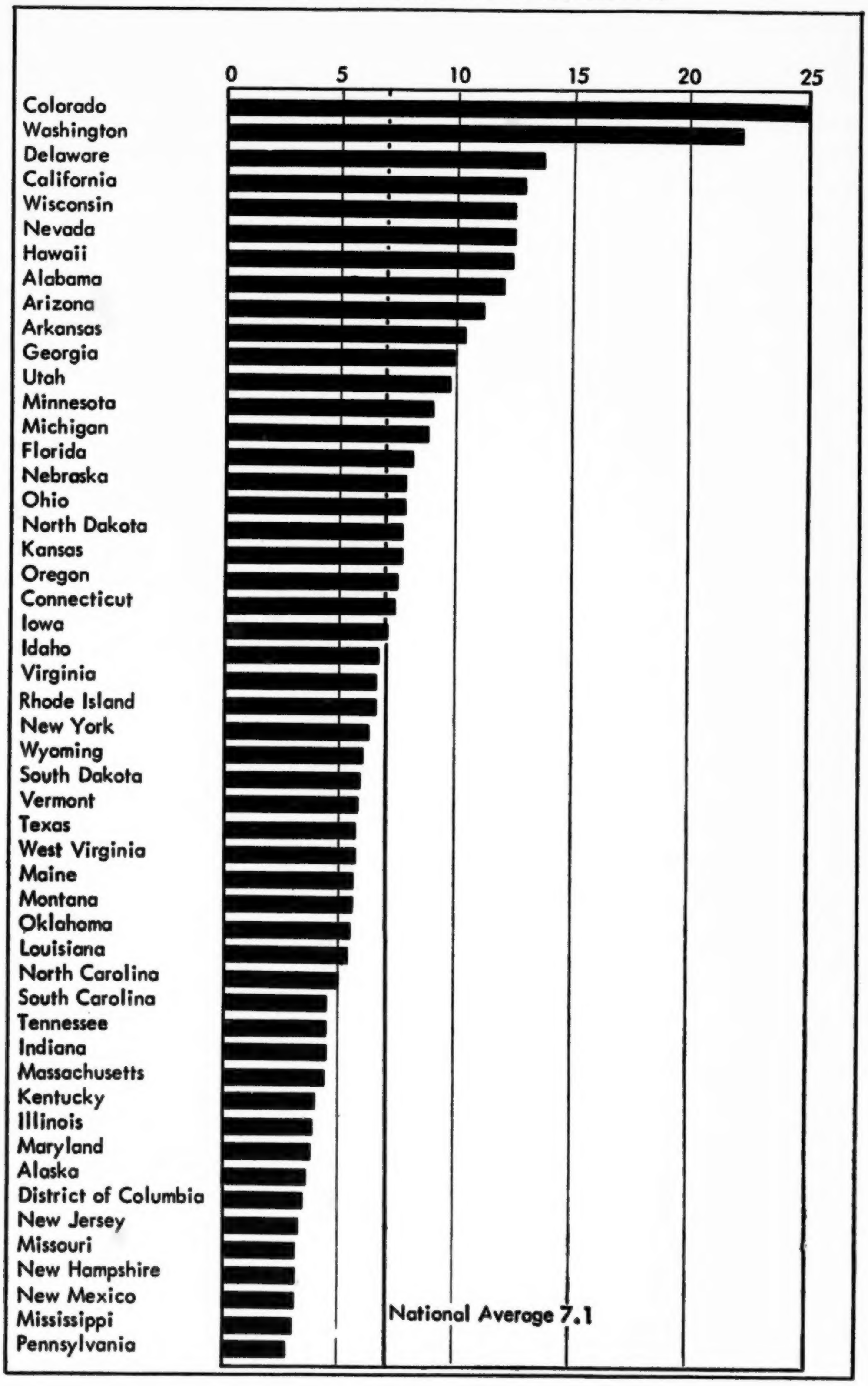
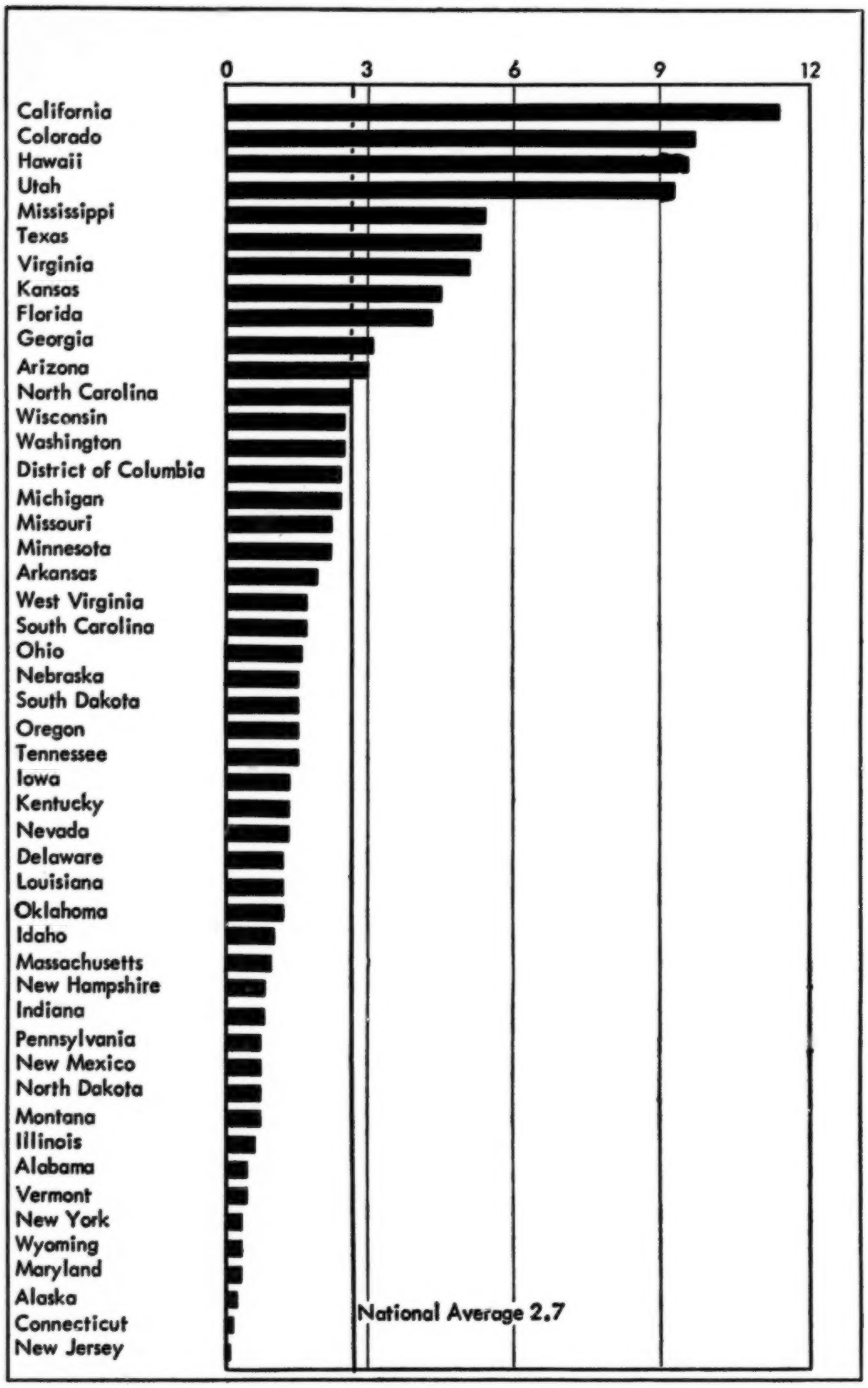


Figure 17.—Proportion of U.S. Population Aged 20–64 Enrolled in Adult Programs of Distributive Education, 1960–61

Enrollment per 1,000 population 20–64 years of age



and the lower arbitrary limit of 20 years does not actually separate the in-school youth from the out-of-school youth and adults. However, it is still a fact that the 20–64 age group contains the largest number of employed persons. Comparative data for out-of-school youth and adults are shown in table 23 and in figures 15, 16, and 17.

When enrollees in vocational agriculture are compared with the 20–64-year age group in each State, the enrollment varies from a high of 27.2 per 1,000 age group population (Mississippi) to a low of 0.1 (New York and New Hampshire). (See fig. 15.) It would appear that a farmer in New Hampshire or New York is not as well served by vocational agriculture as is a farmer in Mississippi or South Carolina. Another relationship could be shown by comparing actual employment in farming and enrollment. Even in this comparison, the States would vary in the extent to which they served the appropriate farming group. However, in order to maintain consistency of analysis, all calculations were related to the total population group 20–64 years of age.

Enrollment in trade and industrial education compared with the 20–64 age group ranged from a high of 25.0 enrollees per 1,000 of the population (Colorado) to a low of 2.8 (Pennsylvania). Variations among the States are shown in figure 16. Although no optimum ratio has been determined, these facts show that all enrollments are quite small in relation to need. The trend toward greater sophistication of industrial and technical work, continued shortages of skilled workers and technicians, the development of new occupational areas—all evidences of critical retraining needs—suggest that the program of trade and industrial education should serve a much larger proportion of the work force.

Distributive education enrollment is exceedingly small when compared with the 20–64-year age group. The variation among the States is shown in figure 17; two States show no enrollment for 1960–61. Employment in the occupations served by distributive education is large, which suggests that this program needs to be vastly expanded to serve a larger proportion of the employed workers.

Technician Training Programs

Area technical education programs, conducted under the provisions of the National Defense Education Act, increased in enrollment 253 percent during the period 1959–61.[5] Programs were conducted during 1960–61 in 49 States, the District of Columbia, and Puerto Rico. Ten

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[5] All data on area technical education programs are from Office of Education, Division of Vocational and Technical Education, Area Vocational Education Branch, *Progress in Title VIII Programs, Fiscal Year 1961.* Washington: U.S. Department of Health, Education, and Welfare, 1962. Mimeo., p. 4.

States reported that 70 new area schools were either completed, under construction, or in the planning stages as a result of program expansion.

Area technical education programs were distributed among the following kinds of schools in 1960–61:

Kind of school	*Number*	*Percent*
ALL SCHOOLS	620	100.0
Community or junior college	176	28.4
Comprehensive high school	168	27.0
Vocational or trade school	106	17.2
Vocational-technical high school	66	10.6
Technical high school	49	8.0
Technical institute	25	4.0
4-year college	17	2.7
State board of education school	13	2.1

Programs for in-school youth represented 32 percent of the total enrollment; out-of-school youth and adults, 68 percent. Thirty percent of the program for in-school youth was conducted in secondary schools; 70 percent in post-secondary schools.

Study of Availability

Since national data support only broad generalizations concerning the programs of vocational education for in-school youth, a special study was made of the program in Alabama, Georgia, Iowa, Nebraska, Ohio, and Pennsylvania.[6] Official records were consulted in each of these States. Every attempt was made to obtain data upon which realistic comparisons could be made, the selected States being considered representative of the Nation as a whole. The data were tabulated on the basis of community population: 2,499 or less; 2,500 to 29,999; and 30,000 or more. There were 3,733 public secondary schools included in the study; 63.8 percent of them offered one or more programs of vocational education. Distribution of the programs for in-school youth by school was as follows:

Vocational program	*Number of schools (3,733)*	*Percent of schools offering vocational programs*
1 or more	2,383	63.8
Home economics education	1,757	47.1
Agricultural education	1,699	45.5
Trade and industrial education	352	9.4
Distributive education	190	5.1

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[6] "The Availability of Vocational Education in Six Selected States." A Study for the Panel of Consultants on Vocational Education. Washington: U.S. Department of Health, Education, and Welfare, 1962.

The distribution of vocational enrollment within the schools was shown by the study to be:

	Vocational enrollment	*Percent of enrollment*
TOTAL	[1] 256, 726	16. 7
Home economics education	133, 364	8. 6
Agricultural education	82, 158	5. 3
Trade and industrial education	33, 613	2. 2
Distributive education	4, 650	. 3

[1] Total student enrollment, 1,543,700; includes 2,936 in practical nursing and health occupations and area technical programs. (A total of 0.3 percent of the school enrollments.)

A close relationship is observed between the percentage distribution of enrollment nationally where the 15–19 year age group was used as a base (table 22) and the actual count of students enrolled in vocational education programs in the six States studied.

The population of the community in which the school is located is also an important factor in the enrollment in vocational education. Table 24 shows the percentage distribution of enrollment.

Table 24.—Enrollment in federally reimbursed vocational programs as a percentage of total enrollment in public secondary schools, by location of school, 6 selected States, 1960–61 [1]

Schools with vocational programs, by location of school	Total	Home economics	Agriculture	Trade and industry	Distributive education
ALL SCHOOLS....	16.7	8.6	5.3	2.2	0.3
Population area of 30,000 or more................	4.0	1.7	0.3	1.5	.2
Population area of 2,500–29,999................	7.7	4.4	2.6	.6	.1
Population of 2,499 or less...	5.0	2.6	2.3	.1	0.0

[1] "The Availability of Vocational Education in Six Selected States." A study for the Panel of Consultants on Vocational Education.

Metropolitan Areas

The population and economic changes of the last three decades have been reflected in the schools of the large urban centers. Many high school curriculum patterns have been developed in an effort to meet the diversified needs of young people in these cities. Table 25 shows the distribution of large city high schools and enrollment by curriculum pattern. Sixty-five percent of the public high schools in 14 of the largest cities have diversified curriculums which include some

Table 25.—Number and percent of public high schools in 14 large U.S. cities and number and percent of students in grades 10–12, by type of curriculum, 1961–62[1]

Type of curriculum	Public high schools		Students (grades 10–12)	
	Number	Percent	Number	Percent
TOTAL	371	100	654,034	100
Academic only	6	2	11,286	2
Academic and business	37	10	41,605	6
Comprehensive	243	65	517,307	80
Predominantly vocational	66	18	75,683	11
Other	19	5	8,153	1

[1] "Vocational Education in the Large Cities of America." A study for the Panel of Consultants on Vocational Education made by Research Council of the Great Cities Program for School Improvement, 1962. The study includes Baltimore, Boston, Buffalo, Chicago, Cleveland, Detroit, Houston, Los Angeles, Milwaukee, New York, Philadelphia, Pittsburgh, St. Louis, Washington.

vocational courses. Eighteen percent of the high schools have exclusively or predominantly vocational curriculums.

The large cities of America, in grades 10–12, enroll 18.1 percent of their total number of students in programs of trade and industrial education, distributive education, home economics education, and agricultural education.[7] The distribution of the total enrollment in grades 10–12 in the large cities included in the study is indicated as follows:

Vocational program	*Vocational education enrollment*	*Percent of total school enrollment*[1]
Trade and industrial education	78, 863	12. 34
Distributive education	18, 863	2. 96
Home economics education	16, 757	2. 63
Agricultural education	1, 092	0. 17

[1] Enrollment for Buffalo not included; total school enrollment, 637,923.

Student Placement and Earnings

In the opinion of many, the acid test of the quality of the vocational education program is placement of students in the occupations for which they receive instruction. This does not suggest that the students enter the work force as fully competent workers; neither does it suggest that their preparation has been specifically for one of the many occupational specialties. Most vocational programs in the high schools prepare students for the entry level of an occupation. Advanced instruction, or upgrading of workers already employed, is normally a function of the adult or extension program.

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[7] Research Council for the Great Cities Program for School Improvement, *Vocational Education in the Large Cities of America.* A special study prepared for the Panel of Consultants on Vocational Education.

Placement Studies

The earnings of students before and after graduation are of increasing importance and interest. To the extent of available data, this section of the report deals with earnings and placement of vocational students in the work force. These data, when available, have significant implications:

> While national placement figures are not available they can be approximated from data collected in regional graduate followup surveys such as that conducted annually in the 13 States comprising the North Atlantic region. Over the 9-year period, 1951–59, an average of 84 percent of all graduates of industrial cooperative training programs were employed in the occupational area for which they were prepared. For graduates of day trade programs, the average was 64 percent. Since students in both programs are drawn from the same student population, the higher graduate placement in the cooperative program, where students are "placed" for part of their training while still in school, suggests that the lower placement record of the day trade program is more a function of placement procedures than the employability of the graduates. It should also be noted that figures presented are conservative in that the groups on which they were based include those students too young to be legally employed in their trade and those still job-shopping 4 months after graduation, when the survey was made.[8]

Graduates of day trade and technical programs	*Number*	*Percent available*
TOTAL	20,669	
Not available for placement	5,503	
Continuing in school	2,481	
Entered armed services	3,022	
Available for employment	15,166	100.0
In jobs related to training	10,208	67.0
In jobs *not* related to training	2,696	18.0
Unemployed	1,035	7.0
Unaccounted for	1,227	8.0

Graduates of part-time cooperative programs	
TOTAL	1,856
Not available for placement	374
Continuing in school	156
Entered armed services	218

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[8] Office of Education, Division of Vocational and Technical Education. Staff Paper No. 4 on Placement of Graduates and Early Leavers in Day Trade and Industrial Education Programs, 1962.

Graduates of part-time cooperative programs—Continued	*Number*	*Percent available*
Available for employment	1,482	100.0
In jobs related to training	1,271	86.0
In jobs *not* related to training	95	6.0
Unemployed	46	3.0
Unaccounted for	70	5.0

The North Atlantic study suggests that approximately 7 out of 10 student graduates available for employment actually enter an occupation for which they are trained. Other local studies indicate that approximately this relationship may be true for the Nation as a whole. Graduates entering the armed services instead of employment frequently receive preferred military ratings and assignment because of their vocational training. Unemployment rates among vocational education graduates are significantly lower than among high school graduates generally.

> These data relate only to students placed in the occupational area for which they were trained. When considered from the standpoint of total employment, results of the same survey indicated that in 1959 only 5 percent of graduates of trade and industrial programs were unemployed as compared with 15 percent of all high school students in the United States who graduated in the same year. This fact becomes more significant when it is considered that the graduates were seeking jobs in those 13 high unemployment States which contain approximately one-half of all redevelopment areas in the country. This fact would suggest that trade and industrial education offers concrete employment values even to those who choose not to follow the occupation for which they were trained.[9]

A study of 4,411 first-year graduates from daytime trade preparatory programs in New York City in 1960 gave results similar to those of the North Atlantic region.[10] Sixty-four percent of all graduates were placed in the occupation for which they were trained or in a closely related occupation. Of those enrolled in the industrial training program, over 84 percent were placed within a year after graduation.

A followup study of trade preparatory programs was made in 11 North Central States in 1953. Data were available on 1,942, or approximately 22 percent of the 1948 graduates. Of these, 43 percent were employed in the trade for which they had been trained 5 years earlier, 13 percent were employed in related trades, and the others were employed in occupations not related to their training. Those employed in trades related to their training received higher initial wages, and received higher wages 5 years later than the others. Most employers considered the graduates as "average" or above, with respect to eight items included on a rating scale.[11]

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[9] *Ibid.*, pp. 28–29.

[10] Staff paper, Trade and Industrial Branch, Division of Vocational and Technical Education, U.S. Office of Education, 1962.

A study in 1950 of 160 of the 167 daytime trade-preparatory graduates of the Omaha (Nebr.) Technical High School for the school years 1946–48 found 64 percent of the graduates were employed in the trade for which they were trained.[12]

Vocational agriculture.—Agriculture education programs can be evaluated according to the proportion of graduates who have become established in a farming or farm-related occupation, or who have been encouraged to study further in the field of agriculture. In several States, followup studies of graduates have been made.

A 1958 study in Iowa sought to determine the effect of high school vocational agriculture courses on establishment in farming. Graduates were studied from 20 schools selected at random from those with vocational agriculture programs. Of the men graduated between 1943 and 1948, who had completed 3 or more years of vocational agriculture, 55 percent were farming in 1958. Twelve percent were in occupations related to farming and 33 percent in occupations not related to farming.[13]

A study of 1,943 farm-reared male graduates of an Iowa high school in 1961 showed that 38 percent were employed in farming and 17 percent in farm-related occupations. Graduates with more semesters of vocational agriculture more often chose farming and farm-related occupations.[14]

Another 1961 study of 1,335 Ohio vocational agriculture graduates from a random sample of 108 schools showed that 2 out of 3 were in farming or farm-related occupations during their first year after graduation. Approximately 60 percent of those who had been out of school for 5 years were engaged in farming or farm-related activity.[15]

A similar study was made in 7 eastern Washington high schools of 141 graduates who had taken 3 or more years of agriculture in the period 1950–55.[16] Sixty-five percent of the respondents indicated that vocational agriculture had helped them select an occupation. A compilation of the data showed the following occupational status: farming and ranching, 30.5 percent; farm labor, 7.1 percent; agriculturally related occupations, 12.1 percent; nonagriculture, 31.9 percent; military service, 10.6 percent; and college, 7.8 percent.

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[11] H. H. London and others, *Day Trade Preparatory Graduates, Central Region, Class of 1948: A Followup Study,* Department of Industrial Education, University of Missouri, Columbia, Mo., 1953.

[12] Bernard Ray Gyger, *Employment Status of Day Trade Preparatory Graduates,* Omaha Technical High School. Master's thesis, Colorado Agricultural & Mechanical College, Fort Collins, Colo., 1950.

[13] *The Relationship of High School Vocational Agriculture to Establishment of Graduates in Farming and Other Occupations, Agricultural Experiment Station Project 1253,* Iowa State University, Ames, 1958.

[14] Melvin F. Newton, *Factors Influencing the Occupational Choices of Farm-Reared Graduates of Newton High School.* Master's thesis, Iowa State University, Ames, 1961.

[15] Ralph Edward Bender, *What's Happening to Ohio's Vocational Agriculture Graduates.* Nonthesis study, the Ohio State University, Columbus, 1961.

[16] John Minton Wilson, *An Occupational Survey of Former Vocational Agriculture Students of High Schools in the Wheat Area of Washington State.* Master's thesis, Washington State University, Pullman 1961.

Fifty-one percent of the former vocational agriculture students in Alabama were engaged in farming and farm-related occupations 5 years after graduation. Half the boys selected at random from all supervisory districts of vocational agriculture in Alabama were still in farming. The following summarizes the findings of this study:[17]

Student Vocations as of April 1962	*1957 class (percent)*	*1961 class (percent)*
In agriculture	50.3	51.0
Farming:		
Full time	11.8	14.2
Part time	14.9	17.2
Related to agriculture	20.9	15.7
Attending college of agriculture	2.7	3.9
Nonagricultural work	41.9	35.3
College, other than agriculture	7.8	13.7
	Number	*Number*
TOTAL	1,119	1,122
Students in above analysis	819	917
Students not included above:		
Military service	210	153
Occupation unknown	80	52
Deceased	10	0

A 1956 study of Illinois high school graduates with training in vocational agriculture showed 48 percent of those graduating from 1942 to 1950 engaged in farming. Samplings in 11 communities in Illinois indicated that about 20 percent of the farm operators had at least one high school course in agriculture; 30 percent had been enrolled in a course for farm veterans or for young or adult farmers.[18]

A compilation by Bishop and Tolley[19] of the results of studies analyzing the occupations of former vocational agriculture students between 1918 and 1960 shows that one-third of the former students were farming and approximately 8 percent were employed in farm-related occupations when the studies were made. When the studies made of students since 1946 were analyzed separately to determine whether changes had taken place since World War II, the results were similar to those obtained for the period 1918–1960.

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[17] *Occupations of Former Students of Vocational Agriculture in Alabama.* Montgomery, Ala.: State Department of Education, 1962.

[18] *Replanning Agricultural Education in Illinois Schools*, Urbana, Allerton House Conference on Education, University of Illinois, Urbana, Ill., 1958, p. 10.

[19] C. E. Bishop and G. S. Tolley, *Manpower in Farming and Related Occupations.* A special study prepared for the Panel of Consultants on Vocational Education, July 1962.

While conceding the importance of placement as a criterion of success of vocational agriculture programs, Bishop and Tolley do not consider it the final determinant.

> Educational programs should be judged not on the basis of the number of youths who select particular occupations or the service of the programs to particular occupational groups but on the basis of the service which the programs render to society as a whole. Certainly, by increasing the productivity of farmers and by enabling agriculture to release labor to the nonfarm sectors of the economy, the agriculture education programs have made it possible for our society to enjoy unparalleled variety and volume of nonfarm goods and services as well as an abundance of food and fiber. In one sense, perhaps the greatest contribution of agriculture education programs has been to make possible the conversion of millions of farmers into nonfarmers. But, it should be emphasized that the improved managerial ability and increased productivity of labor resources emanating from the agriculture education programs only make the conversion possible.[19]

Practical nursing.—Public vocational education programs for practical nurse education have greatly expanded in the past 5 years as a result of the practical nurse amendment to the George-Barden Act. An increasing number of high school programs have developed in which students are enrolled in a combined curriculum leading to both the high school diploma and the practical nursing certificate.

State-approved programs of practical nurse education during the past 5 years have increased at the rate of nearly 50 new programs a year.[20] In 1960 approximately 15,000 students graduated from the 662 programs. Of these, 95 percent took State licensing examinations, and 97 percent of this group became licensed. More than two-thirds of the State-approved preparatory programs are public vocational education programs, and these enroll more than three-fourths of all enrollees in practical nurse education.[21]

In many States all the graduates in practical nurse education take State board examinations for licensure; nearly all who pass are placed in the field for which they are trained. The results of a study of the employment status of 308 practical nursing graduates in Alabama, 1951–61,[22] are believed to be representative of this program in other States.

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[20] All data from staff paper No. 2, Girl's and Women's Training, Division of Vocational and Technical Education, U.S. Office of Education.

[21] Data supplied by Practical Nurse Education Section, Division of Vocational and Technical Education, Office of Education.

[22] Study made by Wenonah State Vocational Technical School on Practical Nursing, Wenonah, Ala., 1962.

Employment status	*Percent*
Employed:	
Hospitals	66.2
Nursing homes	19.5
Private duty	1.0
Doctor's office	1.0
Other:	
Armed Forces	0.3
Attending other school	1.0
Housewife	2.3
Unknown	5.5
Unemployed	3.2

Placement of technicians.—In 1961 the first group of technicians graduated from the area vocational education programs authorized by title VIII of the National Defense Education Act of 1958. Forty-eight States, the District of Columbia, and Puerto Rico reported that 7,596 persons had completed the program.[23] Of these, 15.7 percent continued their education and 8.9 percent joined the Armed Forces. The number of graduates available for placement was 5,572. Of these, 82.9 percent were placed in a position either directly or indirectly related to the field for which they were trained. Only 115 of the graduates were reported as unemployed; 445 were "unaccounted for."

Other achievements in placement and in the training of persons already employed in technical occupations:

> One State reports that 600 of its students were placed in data-processing occupations before they were graduated.
>
> In addition to the graduates of preparatory programs, the contribution made by extension training and the extent of this type of training in the total program is highly significant. New products emerging from expanding research and development activities and the resultant occupational changes have demonstrated the need for continuous study on the part of employed workers. During fiscal year 1961, extension courses accounted for more than two-thirds of the total enrollments. Courses were made available to 83,728 persons, most of whom were already engaged in a technical occupation, to improve their technical knowledge and skills for advancement in their occupations and for upgrading them into new or more difficult jobs.[24]

The following tabulation concerning the placement and average salary of graduates of 2-year preparatory area vocational education programs illustrates the type of data needed for continuing national appraisals of vocational education.

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[23] Office of Education, Division of Vocational and Technical Education, Area Vocational Education Branch, *Placement of Graduates of Title VIII Programs.* Washington: U.S. Department of Health, Education, and Welfare, 1962. Mimeo.

[24] Special staff report on technical training under title VIII, Division of Vocational and Technical Education, U.S. Office of Education, 1961.

Occupational field	*Number placed*	*Average salary*[1]
Aeronautical	44	$4, 100
Chemical	45	4, 150
Civil and highway technology	363	4, 900
Data processing	152	4, 600
Electrical	413	4, 200
Electronics	1, 665	4, 400
Instrumentation	153	5, 600
Mechanical drafting and design	843	4, 000
Mechanical production	265	4, 200
Metallurgy	77	5, 500
Other	149	4, 350

[1] From a high of $8,000 (metallurgy) to a low of $2,800 (mechanical drafting and design).

The status of graduates from preparatory technical curriculums under the National Defense Education Act for the school year ending June 30, 1962, was as follows:

Status of graduates	*Number 1961*	*Percent*	*Number 1962*	*Percent*
TOTAL	7, 596		10, 209	
Not available for placement	2, 024		3, 082	
Continuing their education	1, 194		1, 948	
Entering Armed Forces	678		775	
Other	152		359	
Available for placement	5, 572	100. 0	7, 127	100. 0
Placed in field of training	4, 171	74. 4	5, 552	77. 9
Placed in related field	483	8. 5	420	5. 9
Placed in nonrelated field	358	7. 2	450	6. 3
Unemployed	115	2. 0	165	2. 3
Unknown	445	7. 9	540	7. 6

Distributive education.—A high percentage of the students who graduate from distributive education programs enter the occupation for which they study. A representative report of a followup of distributive education students in New Jersey [25] indicated the following:

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[25] Department of Education, Vocational Division, *Follow-Up Study of Graduates, Vocational-Technical Education Programs, Class of 1960.* Trenton: State of New Jersey, undated, p. 27.

Distributive education graduates	*1959*	*1960*
TOTAL	354	424
Available for placement or employed	247	273
Placed in the field of training or in closely related field	151	183
Not available for placement:		
Continuing education	32	32
In Armed Forces	48	42

Distributive education graduates have been able to secure jobs when unemployment levels have been high, and they have succeeded in their jobs. A followup of the 1959–60 distributive education graduates in Illinois showed that less than 1 percent of those who had enrolled in distributive education classes were unemployed at a time when State and national unemployment averages were near 6 percent.[26] A 1958 study in Illinois showed that of 82 graduates of part-time cooperative distributive education programs, 14 percent were salesmen, 10 percent managers, 8 percent assistant managers, 5 percent salesclerks, and 4 percent department heads.[27] Forty-two percent had been in their present jobs since leaving school.

A 5-year followup Virginia survey of part-time cooperative training students for the years 1951 through 1955 showed that 72 percent were engaged in inside selling, 5 percent in outside selling, and 23 percent in service jobs.[28]

A 10-year evaluation study made in South Carolina indicated that almost half the graduates of the part-time cooperative distributive education program were employed in a distributive occupation; another 10 percent were employed in related occupations. Approximately 24 percent were in military service. Less than 1 percent of those seeking work were unemployed.[29]

Earnings and Achievements

Not only do a high proportion of vocational education graduates enter occupations for which they are trained (or closely related jobs), but there is also evidence that they make more money than those who have not had formal preparation for employment. Graduates of trade and industrial programs in the North Atlantic region in 1951 earned an average of $1.05 per hour; by 1956, $1.24 per hour; and in 1960, $1.46 per hour. These salaries compare favorably with salaries for other beginners with similar educational requirements. At this rate the amount earned in 1960 would total $56.80 for a 40-hour week and $2,953.60 for a yearly wage based on 52 weeks.[30]

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[26] V. E. Burgener, *What Happens to Distributive Enrollees in Illinois, a Survey of 1959–60 Students.* Springfield, Ill.: State Department of Education, 1961.

[27] LeRoy J. Donaldson, *An Evaluative Study of the Federally Reimbursable Part-Time Cooperative Distributive Education Programs in the Public Secondary Schools of Illinois.* Doctoral dissertation. Iowa City: State University of Iowa, 1958.

[28] Report from Distributive Education Service, Division of Vocational Education, State Department of Education, Richmond, Va., 1960.

[29] Etta Moseley Dorn, *An Evaluation of the South Carolina Distributive Education Instructional Program: 1950–1960.* Master's thesis. Greenville: Furman University, 1961.

Those who completed a 2-year post-high-school technical education program in 1961 and who were placed in an occupation for which they were trained, or one closely related to it, earned an average annual wage of $4,600. Those who took a 2-year course as a part of their high school program earned $3,990.[31]

Graduates from distributive education cooperative programs have also been successful. For example, a study made in Illinois indicated that employers agreed that the cooperative program provided effective preparation for beginning workers in the field of distribution. Also, 88 percent of the parents stated that the program had accomplished something for their children which other courses had failed to do.[32]

In June 1956, a survey among the managers of a nationwide chain of variety stores indicated that 61 percent of the managers who had employed distributive education trainees rated their experience with them "very good." [33] The program has been a valuable aid in securing competent salespeople and future management trainees. A similar survey in Houston, Tex., showed that distributive education students were "above average in all phases of work." A store in Sacramento, Calif., which has cooperated with the distributive education program for 11 years, finds the students "far superior to other inexperienced employees" they hire.

A rating of "good" to "excellent" represented the opinion held in 1955 by 82 percent of the store managers of a national department store chain who were familiar with the work of distributive education students.[34] A district personnel director of a national limited-price variety store chain showed similar support for the program.

> The Chicago District Office has worked very closely with the distributive education program for several years and we have been able to point with pride to some of the students who have made excellent progress in our business. At the present time we have 7 managers in the Chicago district who were formerly distributive education students; 15 assistant managers

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[30] *Placement of Graduates and Early Leavers in Trade and Industrial Programs, op. cit.*

[31] *Placement of Graduates of Title VIII Programs, op. cit.*

[32] Donaldson, *op. cit.*

[33] "Stores Reap Distributive Education Dividends," *National Furniture Review,* May 1961, p. 45.

[34] R. V. Mullen, "Cooperation Between Sears Stores and Distributive Education," *Chicago Parent,* April 1955.

> who were in the distributive education program; and 14 learners, 6 of whom were 1957 graduates, and 8 who graduated in 1956. We also have 64 distributive education students who are working in various capacities in our stores this semester.[35]

High school graduates who have completed 3 or more years of vocational agriculture hold a significant economic advantage over farm-reared high school graduates who have not had such training. An Iowa study of 1943–54 graduates who were farming in 1955[36] showed that 89 percent of those with training in vocational agriculture were above hired-hand status, 57 percent farmed 161 acres or more, and vocational agriculture graduates realized in 1955 a mean of $7,720 in total gross sales from farming. Of the graduates who did not have vocational agriculture training, 79 percent were above hired-hand status, 48 percent farmed 161 acres or more, and all those with farms realized a mean of $5,788 in total gross products. Thus, vocational agriculture graduates realized an average of $1,932 more in 1955 than other graduates who worked on farms.

A study of the effectiveness of vocational agriculture was conducted in Mississippi in 1959[37] to find out what effect vocational education had, over a period of 30 or more years, on farming and on other aspects of the lives of the people in the community. Of the 1,090 farmers surveyed, 21 percent (232) had taken vocational agriculture in high school, 48 percent had participated in adult farmer classes, and 16 percent had received all-day adult farmer instruction. Those who received organized instruction in vocational agriculture lived in better homes, achieved a higher rate of production, and participated in more community activities than others.

The Ohio program of trade and industrial education annually presents a summary of the earnings of vocational graduates who have been students in cooperative programs during the year.[38] An analysis of 1,602 students who worked in 36 industrial occupations in the 1960–61 academic year revealed that the total earned by the group was over $1 million. The placement record also indicated that 79 percent of the available graduates were employed in the area of their training. (See following tabulation.)

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[35] F. W. Woolworth Co., Distributive Education Survey, Chicago District Office, E. J. Renowden in *The Distributor,* March 1958.

[36] *Agricultural Experiment Station Project 1253, op. cit.*

[37] O. L. Snowden and others, "The Effectiveness of Vocational Education in Agriculture in Mississippi." Special study, 1959 Bulletin, Mississippi State Board for Vocational Education, Jackson, 1959.

[38] Trade and Industrial Service, *Placement Record of Vocational Graduates by Trade, 1960–61.* Columbus: Division of Vocational Education, State Department of Education, 1961. (Mimeo.)

Status of vocational graduates	*Number*
TOTAL	3,221
Not available for employment	522
Continuing in full-time school (202)	
Entered armed services (320)	
Available for jobs	2,699
Placed on jobs using vocational training	2,119

Contributions During National Emergencies

The impact of national crises, emergencies, and recessions has been lessened by the public vocational education program. Historically, in its infancy the program responded to World War I by enrolling almost 36,000 workers in courses preparing for military service and war production.[39] Vocational education programs have continued to respond vigorously to national emergencies. This response must be recognized as an element in the evaluation of the program. To some extent, the contributions of vocational education in meeting national emergencies may be illustrated in terms of enrollments and expenditures; other achievements lack such specific evidence for appraisal. Congress has recognized these contributions to the national welfare by its consistent and sustained support for vocational education—despite investigations, studies, and proposed curtailments. More important, the local-State-Federal program has demonstrated that it can be quickly adapted to the needs of people and the requirements of the Nation.

The Depression Years

The Digests of Annual Reports[40] for the 1931–35 period reveal vocational education activities to counteract the effect of widespread unemployment. In 1931, evening school enrollments increased in the vocational program. The Federal Board for Vocational Education at the time suggested that the States admit unemployed adults to preparatory courses in communities where jobs might be available; it also suggested that unemployed adults be admitted to part-time courses and employed workers be encouraged to attend extension courses "to upgrade themselves and thereby become more resourceful and better qualified in their occupations—protecting themselves against the loss of their jobs due to technological advances in their occupations."

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[39] W. Daniel Musser, *Vocational Training for War Production Workers,* Final Report, Federal Security Agency, U.S. Office of Education, Bulletin 1946, No. 10, p. 4.

[40] Division of Vocational Education, *Digest of Annual Reports of State Boards for Vocational Education.* Washington: U.S. Government Printing Office, 1931–35. (Prior to 1933 entitled, *Annual Report of the Federal Board for Vocational Education.*)

Informal commendation was extended to vocational agriculture teachers in 1932 for their influence in promoting programs of farm budgeting, adjustment to economic situations, and conservation of food products. Although earnings had fallen, fewer farm mortgages had been foreclosed, demand for credit had been reduced, farmers had been less affected by lower prices, and less Red Cross aid had been required in those rural communities where vocational agriculture teachers were active.

The widespread industrial unemployment in 1933 was reflected in a decrease in vocational education enrollment for the first time in its history. Local, State, and Federal funds for vocational education decreased by $3.2 million. Handicraft industries (weaving, woodcarving, wrought iron work, silversmithing, furniture making) were revived to supplement incomes; homemaking instruction enabled many individuals and families to modify their mode of living so as to maintain health and living standards on greatly reduced incomes.

The depression years of the 30's also saw development of certain programs of vocational education outside the traditional framework of public vocational education. These included the vocational education phases of the programs of the Works Progress Administration (WPA) and the National Youth Administration (NYA). The WPA established vocational classes for persons over 16 years of age who were on relief or unemployed, in trade and industrial work, commercial and business occupations, agriculture, household and domestic service, and other fields. Classes were usually held in public school buildings. The program closely paralleled the programs operated for adults by State education agencies, and in a few States it was administered directly by the State board for vocational education. Appraisal of the program indicated the desirability of closer cooperation between officials of the regular and emergency agencies at both State and national levels. Some 165,000 enrollees were reported in November 1937.[41]

The NYA provided vocational education classes for those enrolled in its residence work projects and encouraged attendance at vocational courses in the public schools for those enrolled on other work projects.[42] Some of the work projects were operated in space provided by public educational institutions, and in some instances the work project assisted in improving the facilities for normal public vocational education. In some States there were close working relationships between the NYA and the public education agencies; in others, the relationships were poor. The experience of the NYA program indicated the desirability of careful planning for close working relationships in future programs of this type.

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[41] Doak S. Campbell, Frederick H. Bair, and Oswald L. Harvey. *Educational Activities of the Works Progress Administration* (Staff Study No. 14). Washington: The Advisory Committee on Education, 1939, p. 87–89.

Training War Production Workers

The National Defense Training Program, inaugurated in July 1940 to aid America's preparedness by training workers for defense industries, operated within the framework of the vocational programs established by the Smith-Hughes Act. The War Production Training Program developed into what is perhaps the greatest emergency assignment ever undertaken by the public schools.

As early in 1938, the Office of Education concerned itself with analyzing training problems and conditions that might well develop in event of an emergency. In May 1939, in consultation with officials of the War Department, a survey was made of vocational training facilities and equipment. The survey estimated that the training capacities in vocational shops numbered at least 50,000 students. In addition to studying these data, military officials visited public vocational schools to get first-hand information about the operation of vocational training programs. The survey and site visits revealed that vocational schools were in a position to initiate training projects of national proportions.

Meanwhile, the States began preparation for the job of training defense workers. In many cases, schools organized classes, employed instructors and supervisory personnel, and obligated local school funds for defense training before there was any indication that they would receive Federal money for those expenditures.

Requests began to come to the U.S. Office of Education for funds to train workers in defense plants. In the face of these requests, the Office of Education called a conference on May 28, 1940, to discuss an emergency vocational training program. On May 29, 1940, the U.S. Commissioner of Education released a report entitled "Training for National Defense."[43] This report dealt with the vocational education facilities available and outlined their possible use for an emergency vocational training program in specialized occupations.

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[42] Palmer O. Johnson and Oswald L. Harvey. *The National Youth Administration* (Staff Study No. 13). Washington: The Advisory Committee on Education, 1938, p. 71.

[43] Musser, *op cit.*, p. 14.

In a message to Congress on May 31, 1940, President Roosevelt requested that provision be made for expanding the U.S. defense program immediately by training and retraining workers for employment in industry. Congress quickly responded to the President's request by appropriating $15 million to cover the "cost of courses supplementary to employment in occupations essential to the national defense and preemployment refresher courses for workers preparing for such occupations selected from the public employment office registers."[44]

The following chronology of events in 1940 is indicative of the sound basis on which the local-State-Federal authorities had built public vocational education in America and the speed with which the necessary adaptation was made.

MAY 31—President sent message to Congress urging that provisions be made for the expansion of the defense program by the immediate training and retraining of the American people for employment in industry.

JUNE 1—U.S. Commissioner of Education mailed copies of the proposal for a vocational training program to all chief State school officers, city superintendents, and presidents and deans of engineering colleges.

JUNE 8—Twenty-five representative school officials assembled at the U.S. Office of Education to discuss ways and means of carrying on a national defense training program. The program was unanimously endorsed by the group.

JUNE 19—The President transmitted his recommendations of the proposed appropriation of $16 million to the Senate Committee on Appropriations, an amendment to a pending appropriations act, H.R. 10104, that had already passed the House.

JUNE 23—Congress appropriated $15 million for the war training program.

JUNE 25—The U.S. Office of Education convened a conference of 42 State leaders in vocational education to map out policies and procedures for beginning the program.

JUNE 27—The President formally approved the appropriation act known as Public Law 668.

JULY 1—75,000 trainees were enrolled during the month, in hundreds of vocational schools operating under the program from coast to coast.

Although it was based on the foundation laid by the Smith-Hughes Act, the war training program embodied different aims and objectives. The security of the Nation was the foremost objective of the defense program, while the "regular" program had as its primary interest the development of opportunity for the individual. In the emergency program, emphasis was given to short-unit courses to train workers to perform single skill or limited operations rather than to teach skills and knowledge basic to the skilled trades and occupations as taught in the regular courses. Actually, public vocational education accommodated both "regular" and "emergency" programs simultaneously, with numerous schools conducting daytime classes for their in-school youth and nighttime war training courses for workers. Around-the-clock operation of the program was common in many communities. The fundamental differences in the two programs were:

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[44] Musser, *ibid.*, p. 17.

1. Defense training was financed entirely by the Federal Government without matching from State or local funds.
2. Defense training funds could be used for maintenance of instruction, and, in part, for acquisition of equipment and rental of space.
3. Funds were certified to the States according to the training requirements of war industry and without regard to the population of the various States.
4. The defense training program prescribed that certain classes of trainees be recruited through public employment service registers.

The administrative structure of the war training program was established generally along the lines of the regular vocational education program. A director of the program was appointed and made responsible to the Assistant Commissioner for Vocational Education and the Commissioner of Education for the entire operation of the program.

The State board for vocational education submitted to the U.S. Office of Education a State plan declaring its intent to enter the defense training program. The plan included types of courses to be offered, methods and standards of operation, and substantiation for funds requested. Administration within the States was vested in the State boards for vocational education.

Accomplishments at the local level contributed tremendously to the success of the war training program. Courses were short and intensive. Classes were often conducted 24 hours a day—using both school and plant facilities. Trainees were not required to complete any given course but were placed on the job as soon as they could perform single skill operations satisfactorily. Enrollment in preemployment, refresher, and supplementary courses fluctuated with the tide of events.

When the war training program began, the effects of the depression were still felt. Public opinion demanded that men be given preference in employment; however, as manpower shortages developed rapidly after 1942, there was a marked increase in the need for women workers in war plants. By October 1942, the number of women enrolled in war production training classes reached 74,675—the highest number during any month of the entire war period. The total number of women trained during the entire program was 1,501,453—20 percent of all enrollees.

The cost of the program of vocational training for war production workers was approximately $297 million for a 5-year period—including $36 million spent for purchase of equipment, but not including costs for Federal administration. For this amount, 7,500,000 persons received training in war production occupations, a cost of approximately $40 per individual trainee.

There is considerable evidence of commendation of the war training program from war industries of all kinds, the Armed Forces, and Government agencies. The reactions of the States to their wartime efforts and experiences include recommendations for (*a*) itinerant teacher trainers; (*b*) more and better instructional materials; (*c*) development of area vocational schools; (*d*) more attention to the training of women; (*e*) continuance of the close relationships with public employment offices; (*f*) better planning of vocational education programs; and (*g*) more cooperative (work-study) programs.

Veterans' Education and Training

The legislation popularly known as the GI Bill created another opportunity for service immediately following World War II, with delegation to the States of the approval and supervisory functions of on-the-job training programs and of public and proprietary school courses for veterans. The programs for the training of veterans included agriculture, distributive education, and trade and industrial education. The responsibility involved approving institutions for veterans' training, inspecting and approving establishments for on-the-job training, preparing instructional materials, organizing related instruction for on-the-job trainees, and generally supervising and directing the training programs.

Training courses were reviewed in relation to State criteria, and approval of on-the-job or formal school instruction was granted on the basis of these criteria. Many vocational teachers, coordinators, and supervisors were employed at all levels to staff the program and provide liaison with the Veterans Administration at State, regional, and national levels. For many programs in private and proprietary education, the recognition of standards and criteria was a new experience. In many States, the liaison offices organized at that time within State departments of education have continued in operation. Great impetus in curriculum development of many occupational training courses and programs undoubtedly clarified teaching and learning of many traditional jobs and in a host of the newer occupations.

National Defense Education Act

Title VIII of the National Defense Education Act provided funds for the training of highly skilled technicians in programs administered through the framework already established for vocational education. In the 4 years since the enactment of this landmark legislation, much has been accomplished in making local surveys of needs for technician training, providing new plants and equipment, developing curriculums, and offering full- and part-time programs for youth and adults, on the high school and post-high-school levels. The program is described elsewhere in this report.

Recent data indicate that the enrollments in title VIII programs have grown from 48,564 in 1959 to 122,952 in 1961. In 21 States reporting 1961–62 enrollments, there was an average enrollment increase of 22.4 percent over the previous year. Progress has also been made in other aspects:

> New legislation for financial support has been enacted in 23 States since 1958. Some States have moved rapidly with good leadership; others have been slow to respond. A particularly significant factor has been the degree to which education agencies within each State have been able to cooperate in establishing technical programs. The agencies most frequently involved in cooperative efforts are: State boards for vocational education, administrative boards for higher education, State industrial development commissions, and local school boards. All things considered, however, the three most significant factors in the development of technical education under title VIII are: The availability of funds for equipment, the establishment of educational standards, and the administrative organization.[45]

Economic Adjustment

Congress recently passed the Area Redevelopment Act and the Manpower Development and Training Act[46] to help alleviate the social and economic problems caused by unemployment. These acts authorize vocational training. In the first full year of the Area Redevelopment Act, 207 training projects were approved in 37 States. These projects authorized training for over 12,000 persons in 105 different occupations. In the first 3 months of operation under the Manpower Development and Training Act, 371 projects requesting retraining for 17,000 unemployed workers were received from training agencies in 40 States.

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[45] Maurice W. Roney, *Public Technical Education*, Instrumentation Society of America, reprint No. 14, vol. 2, 1962.

[46] Public Law 87–27, 87th Cong., May 1, 1961, and Public Law 87–415, 87th Cong., Mar. 15, 1962.

International Contributions

One of the major factors in promoting economic growth is adequate provision for developing and upgrading the vocational competency of the people. It is significant that the International Bank for Reconstruction and Development plans to review the applicant nation's vocational education potential in its general appraisal of the economic status of nations requesting a loan.

A number of agencies in this country and elsewhere have promoted vocational education in developing nations. Among these organizations are United Nations Educational, Scientific, and Cultural Organization, International Labor Organization, Agency for International Development, private foundations, and certain religious organizations.

The International Vocational Training Information and Research Centre was established in Geneva in 1961 for the purpose of collecting vocational curriculum materials, including information related to instruction; conducting and publishing analytical studies; and contributing to cooperative research in vocational education involving several countries.

Vocational teachers and administrators have participated in organizing, conducting, and advising in vocational education programs abroad. The total number of vocational educators now serving in foreign countries is not known; however, it was reported that at least 94 vocational teachers and advisers were serving in 28 countries as of August 31, 1962.[47]

Equally important in a review of the achievements and limitations of vocational education on the international scene is the service provided by vocational education to foreign students. During the period July 1 to December 30, 1962, 211 students from 34 countries were studying vocational education in the United States under the auspices of the Agency for International Development and the Technical Assistance Branch of the U.S. Office of Education.[48]

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[47] Sixty-four trade and industrial teachers, 20 vocational agriculture teachers, 1 business education and 9 home economics teachers; data provided by the Technical Assistance Branch, Nov. 7, 1962. This number represents only the teachers recruited cooperatively by the Technical Assistance Branch, Division of Technical Assistance and Exchange Programs, Bureau of International Education, U.S. Office of Education, and the Agency for International Development.

[48] *Participants Under the Supervision of the Technical Training Section and the Agency for International Development, July 1, 1962 to December 31, 1962*, Dated Oct. 30, 1962. (Dittoed report.)

Summary

Conclusions

- The availability of vocational education to youth and adults varies inordinately from State to State.

- Vocational education enrollment, which has increased by 2.3 percent annually since 1918, by 1960–61 was serving 13 percent of the 15–19-year age group and 2 percent of the out-of-school youth and adults between 20 and 64 years of age.

- The extension program in vocational education in 1960–61 enrolled 283,922 more students than the in-school youth program.

- Over two-thirds of those enrolled in area technical programs were out-of-school youth and adults. Of 620 institutions offering area technician training, 31 percent were community (junior) colleges or 4-year institutions of higher education.

- In the large cities, the vocational education enrollment represented 115,575 students, 18 percent of the total enrollment in grades 10–12.

- Limited data are available on placement of graduates, from scattered surveys made on different bases, with consequent lack of comparability.

  a. *Trade and industrial education.*—Approximately two-thirds of the trade and industrial education graduates in the North Atlantic region found employment in the occupational field for which they were trained. Data for the North-Central region show some 56 percent of the graduates similarly employed 5 years after graduation. Percentages are somewhat higher for graduates of cooperative part-time programs.

  b. *Agriculture education.*—A 40-year study indicated that slightly more than 40 percent were employed in farming and related occupations. Other more limited studies show placement percentages of 47–67 percent.

  c. *Technician training programs.*—Studies of technicians trained under the National Defense Education Act indicate that half those trained in secondary school programs and two-thirds of those trained in post-high-school programs found employment in the occupational field for which they were trained.

  d. *Distributive education.*—Various limited studies show that 43–60 percent of graduates of distributive education were placed.

- Few data are available on earnings of vocational education graduates, except for graduates trained in NDEA programs.

  a. Graduates of 2-year post-high-school technical training programs earned an average of $4,600, and graduates of 2-year high school programs earned $3,990.

  b. There is some evidence to indicate that vocational agriculture graduates realize significantly more income than farmers without such training.

- Employers report that the distributive education program is a valuable source of competent salespeople and management trainees.

- In its 45-year history, vocational education has responded well to the Nation's needs in two world war efforts, the depression of the 1930's, and the readjustment of World War II veterans.

- Emergency training programs were assimilated into the public vocational program, apparently without harmful effects to the regular program.

- A start has been made, under the Area Redevelopment Act and the Manpower Development and Training Act, to utilize vocational training for improvement of economic conditions.

- Vocational education in the United States has made many contributions to the development of comparable programs in other nations.

Limitations

- Vocational education is not sufficiently sensitive to supply-and-demand factors in the labor force. In comparison with present and projected needs of the labor force, the enrollments of in-school youth and out-of-school youth and adults are very small.

- Vocational education is not available in many schools. When enrollment is compared with age groups to be served by vocational education, there is generally (*a*) a gross lack of availability nationally, and (*b*) a wide variation of availability among the States.

- Opportunity for vocational choice is greatly limited. A special study of 6 States revealed that, although two-thirds of the schools offered one or more vocational programs for in-school youth, nearly half of the schools did not offer home economics or agriculture, nearly 90 percent did not offer trade and industrial education, and nearly 95 percent did not offer programs of distributive education.

- Service to the urban population is meager. The vocational enrollment of 18 percent of youth in high schools in the large cities is inadequate in the great population centers.

- Although some vocational schools have well-organized placement services for graduates, many do not provide this essential service on an organized basis. There are few organized programs for systematic followup of students after graduation or placement.

- Development of placement data on a nationwide basis is hampered by the lack of standard procedures in the reporting of placements.

- The limited evidence available indicates that placements from many programs may be somewhat lower than desirable. However, when interpreting apparently low placement data, it should be remembered that many graduates enter military service or go on to further schooling.

- The contributions of vocational education in international programs are small in comparison to probable need. Vocational educators are not generally involved in the initial planning for economic aid to other nations.

CHAPTER 7

The People Served

In-School Youth

During the years immediately following the passage of the Smith-Hughes Act, vocational education programs in the public schools, though largely at the secondary level, often accepted students who had not completed the eighth grade. Gradually the level of the programs shifted upward, however, and today much of the specialized vocational education is in the upper years of the high school. Although there is a definite trend in some parts of the Nation toward raising the level of vocational education beyond the high school, for the most part the program is on the secondary level. This section deals with vocational education for high school youth, in the comprehensive high schools and special vocational and technical schools.

Program Scope and Needs

An ideal program of vocational education for high school youth would provide for every student an opportunity to undertake training in the occupational field of his choice, based upon sound vocational guidance. This would require a wide range of curriculum offerings within the student's reach geographically, financially, and otherwise. Identical opportunities do not represent equality of opportunity, for the youth living near a vocational school which does not provide the program in which his interests and aptitudes lie is not served by that school.

Since large cities present special problems for vocational education, a study was made of 14 cities which contain more than 13 percent of the people of the United States. The population and economic changes of the last three decades have been reflected in the schools of these large urban centers; many high school curriculum patterns have been developed.[1]

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[1] See table 25.

Yet only 8 percent of the students enrolled in public high schools in these 14 cities are pursuing trade and industrial curriculums, although probably 20 percent of the employed population is working in the occupational areas represented by trade and industrial curriculums. Only about one-fifth of the high school students in these cities attend a school where any trade or industrial curriculum is offered.

Only about one-tenth of the students attend a public high school where distributive education courses are offered, and only 2 percent take these courses.

Training for employment in office occupations in these cities presents quite a different situation. Approximately 80 percent of all public high schools offer training for office employment, and one-third of all students enrolled in these schools take such courses.

In contrast, if the number of schools offering vocational agriculture can be used as an index of the availability of such instruction for high school youth, agriculture presents considerably more opportunity than does the field of trade and industrial education. Training programs in vocational agriculture were offered high school students in 9,823 schools in 1959–60; trade and industrial education was offered in 2,138 schools. Twenty-eight States have more than 100 schools offering vocational agriculture, compared with 6 States that have more than 100 schools offering trade and industrial education. Figure 18 shows by rank order the number of schools in each State and territory offering vocational agriculture.

In 1959, home economics was taught in 95 percent of all public secondary schools in the United States with more than 100 pupils.[2] Of the girls enrolled in schools offering home economics, 49 percent were enrolled in home economics courses. Of the 15,723 schools offering home economics, 39.5 percent offered vocational home economics programs, 43.4 percent offered nonvocational home economics, and 17.1 percent offered combination programs. Eighty-three percent of the vocational programs were in communities of under 10,000 population.

Table 26 lists, in order of rank, the most frequent offerings in preparatory courses in trade and industrial education. Study of this table reveals great disparity in course offerings. Industrial cooperative training finds favor in the smaller schools and ranks high in the total listing. Auto mechanics, machine shop practice, and woodworking provide 2,130 curriculum offerings, nearly 40 percent of the total of 5,428 shown in table 26. Students who have interests and aptitudes for auto mechanics, machine shop, and woodworking are

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[2] Beulah I. Coon, *Home Economics in the Public Secondary Schools.* Washington: U.S. Government Printing Office, 1962.

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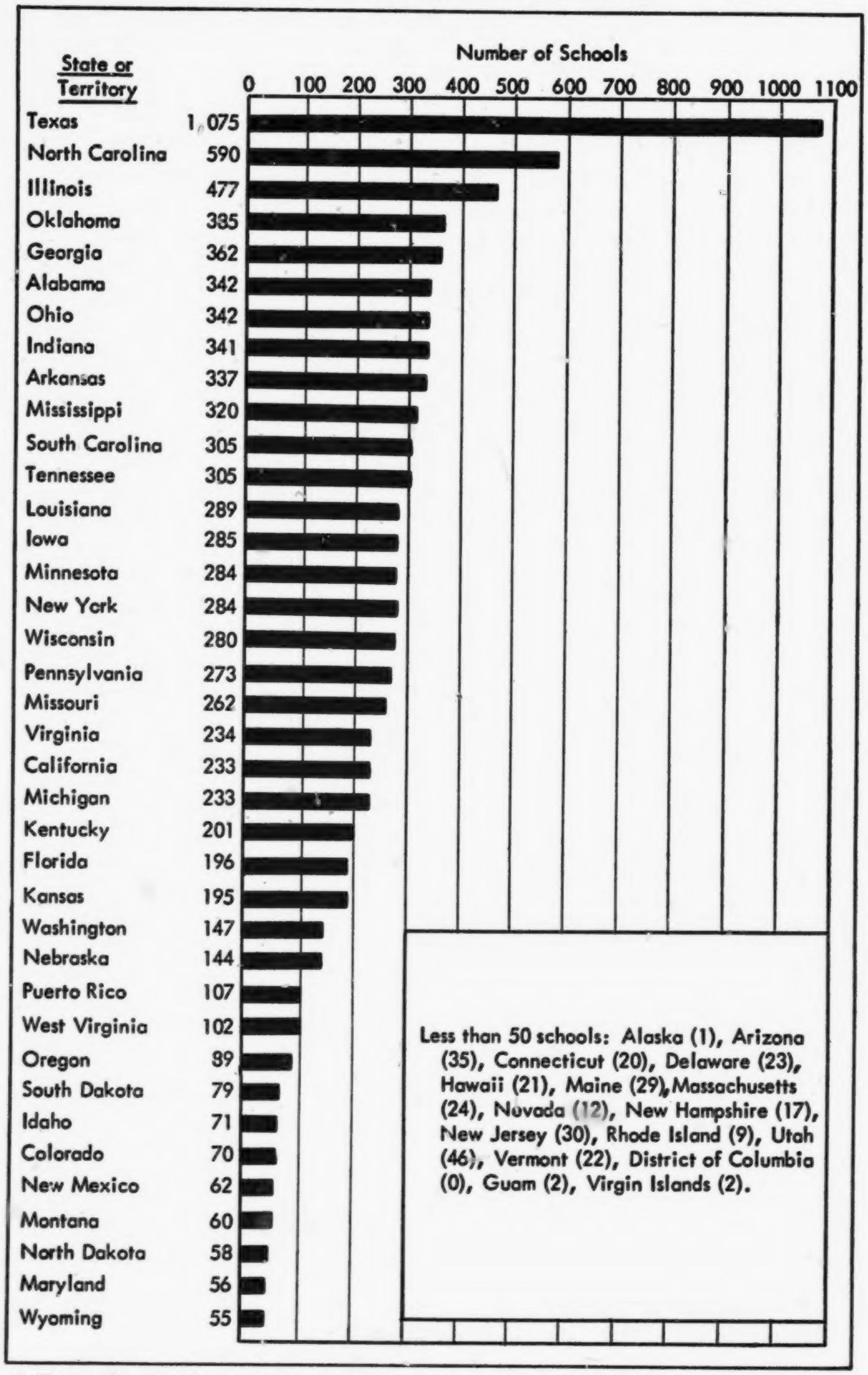
Figure 18.—Number of Schools Offering Vocational Agriculture for High School Students, by State, 1959–60 [1]



Less than 50 schools: Alaska (1), Arizona (35), Connecticut (20), Delaware (23), Hawaii (21), Maine (29), Massachusetts (24), Nevada (12), New Hampshire (17), New Jersey (30), Rhode Island (9), Utah (46), Vermont (22), District of Columbia (0), Guam (2), Virgin Islands (2).

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[1] From *Digest of Annual Reports*, 1960.

provided for much more adequately than are those concerned with other types of programs. As for the small number of programs shown for practical nursing, most of these are on the adult level and are discussed later in this report.

Most of the programs listed in table 26 follow a pattern of 2 years of full-time study. Apparently, little attention has been given to short, intensive programs for occupations of fewer or simpler skills,

Table 26—Number and type of preparatory trade and industrial curriculums in high schools: United States, 1960–61 [1]

Curriculum	Number of schools offering curriculum		
	Total	Small program (4 or fewer)	Large program (More than 5)
ALL OFFERINGS	5,428	2,689	2,739
Auto mechanics	789	463	326
Industrial cooperative training	751	699	52
Woodworking trades	704	425	279
Machine shop	637	357	280
Electrical trades	301	85	216
Drafting (mechanical, architectural, etc.)	252	67	185
Printing	241	77	164
Cosmetology	208	80	128
Radio-television repair	172	57	115
Bricklaying	157	111	46
Welding	142	42	100
Sheet-metal work	130	30	100
Needle trades	97	25	72
Commercial cooking	80	16	64
Commercial art	62	5	57
Metal trades	60	47	13
Plumbing and steamfitting	52	2	50
Electronics	46	....	46
Refrigeration and air conditioning	42	8	34
Tailoring	40	11	29
Practical nursing and nurse aides	39	12	27
Aircraft mechanics	31	3	28
Furniture upholstery and repair	29	4	25
Shoe repair and shoemaking	29	4	25
Painting and decorating	28	4	24
Diesel mechanics	25	5	20
Patternmaking	24	3	21
Miscellaneous [2]	260	47	213

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[1] Sam W. King, *Preparatory Trade and Industrial Training Programs in the Public Schools, a Directory: 1961–62.* Washington: U.S. Department of Health, Education, and Welfare, 1962.

[2] *Curriculums offered in from 5 to 20 schools:* Baking (18), Barbering (9), Boat building (5), Clothing design (11), Dental assistant training (9), Domestic service (5), Farm equipment mechanics (10), Gasoline engine repair (12), General industrial shop (9), Landscape gardening (6), Maintenance mechanic training (8), Nursery assistant training (11), Heating and ventilating (6), Photography (14), Telegraphy (5), Textiles (12), Tool and die making (16), Watchmaking (6), Dry cleaning (12).

One to 4 schools offered 32 additional curriculums.

and others which might meet the needs of many students, especially those who are likely to drop out of high school. Because of the specific limitations of the Federal acts, little has been done to provide broad, basic training for families of occupations, in contrast with the training offered for specific ones. In the light of the training provided through apprenticeship, the broad types of programs might well serve a useful function, especially in the smaller schools.

Because of the special problems faced in the small schools which offer trade and industrial education programs, a special analysis was made of the curriculum offerings in these schools. The line between small and large schools was arbitrarily drawn at four curriculum offerings per school, those with five or more being considered large schools. It is realized that some schools with four curriculums may be large schools, and where this was known they were included in the large-school group.

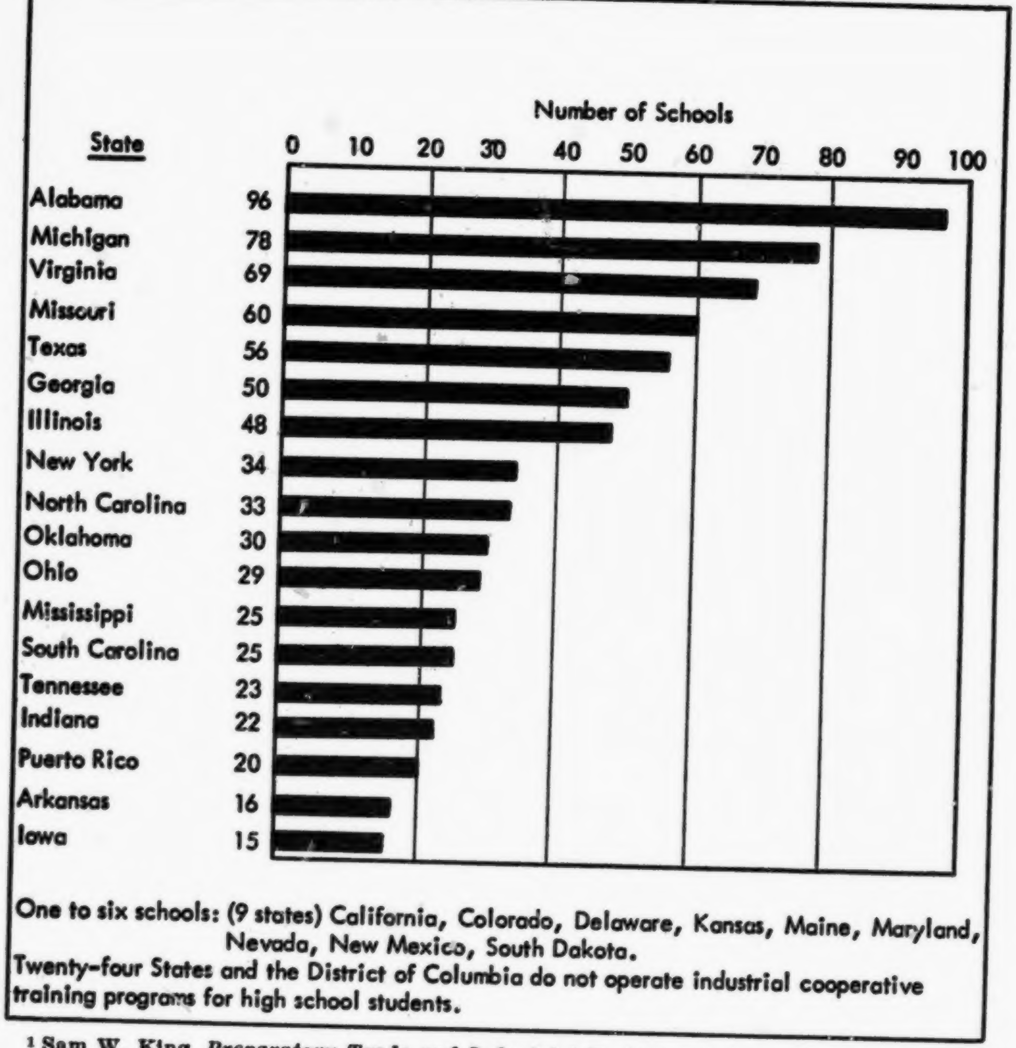
Table 26 shows the number of curriculum offerings in small and large schools. In the country as a whole the number of curriculums available to students in small schools was approximately equal to those available in the large schools. Industrial cooperative training and curriculums in auto mechanics, woodworking, machine shop practice, and bricklaying were more numerous in small schools than in large ones.

Industrial cooperative training was offered in 699 small schools. Figure 19 shows the number of schools offering this type of program, by State. Six States have more than 50 schools with cooperative programs; 24 States and the District of Columbia have none. The industrial cooperative training program fits well in the comprehensive high school and is adaptable for use in any community where sufficient numbers of students desire such training and where jobs are available. Small schools which cannot justify unit programs for a single trade find the cooperative programs useful, especially since no expensive shops are required. These programs help meet the needs of students who would profit by work experience and who need to earn money to remain in school. Utilization of cooperative training programs seems to follow no geographic pattern in the country as a whole, although the Southern States appear to use it somewhat more frequently than do others.

The number of schools in each State offering training programs in trade and industrial education is shown in figure 20. Texas has the most schools (136), and New York is second in the list (130). The curriculum offerings in New York, however, far outnumber those of Texas, as the New York schools on the average are much larger. The curriculums available on the post-high-school level must be taken into account in obtaining a broad overview. This subject is discussed in

Figure 19.—Industrial Cooperative Training Programs Offered 1961–62 by State [1]

(Schools with programs for high school students)



One to six schools: (9 states) California, Colorado, Delaware, Kansas, Maine, Maryland, Nevada, New Mexico, South Dakota.

Twenty-four States and the District of Columbia do not operate industrial cooperative training programs for high school students.

a later section of this report. The 2,138 schools shown in figure 20 offer a total of 5,428 courses, an average of 2.5 courses per school. Many schools offer only one industrial cooperative training program; other schools may have as many as 20 different courses.

Great differences are apparent in the various States and in the small and large communities of the Nation. Youth in the small towns have relatively little opportunity to get preparatory training for industrial occupations, and where they do have some opportunity their choices are greatly restricted. The rural high schools have paid little attention to training for the large number of youth who must migrate to urban areas to obtain employment and have concentrated their efforts on agricultural and home economics programs.

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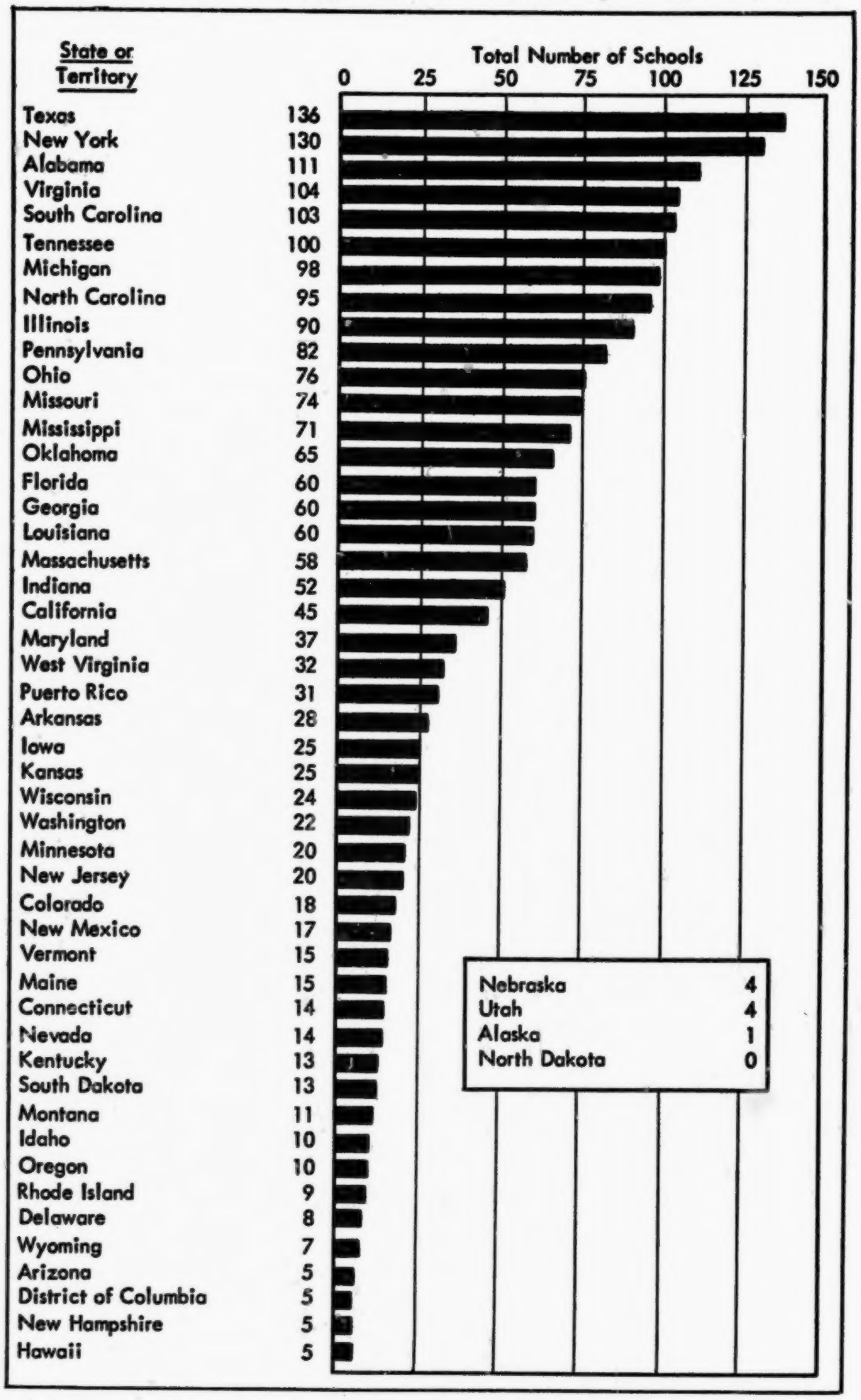
[1] Sam W. King, *Preparatory Trade and Industrial Training Programs in Public Schools, a Directory: 1961–62.* Washington: U.S. Government Printing Office, 1962.

Figure 20.—Number of Schools Offering Preparatory Trade and Industrial Curriculums for High School Students, by State, 1961–62 [1]



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[1] Sam W. King, *Preparatory Trade and Industrial Training Programs in Public Schools, a Directory: 1961–62.* Washington: U.S. Government Printing Office, 1962.

The high schools have failed to provide for basic training programs for groups of occupations, perhaps because Federal aid is not available for such programs. On the other hand, although no programs in the field of office and business occupations receive Federal aid, large numbers of programs in this field are offered in the high schools.

To meet the needs of high school youth for vocational education, a large expansion of training programs is required, especially in the field of trade and industrial education. The Panel's study of 6 States showed that less than 10 percent of the high schools had any trade and industrial classes, and fewer than 2 percent of the high schools in communities of less than 2,500 population had any such classes.

Analysis of the data reported in the study of home economics indicates much similarity between the vocational and the nonvocational programs. The nonvocational programs provide much the same opportunity to learn as the vocational programs, thus widely expanding the total opportunities. The enrollment of 946,860 students in the full-time day program subsidized by Federal funds in 1959–60 included 924,281 girls and 22,579 boys.

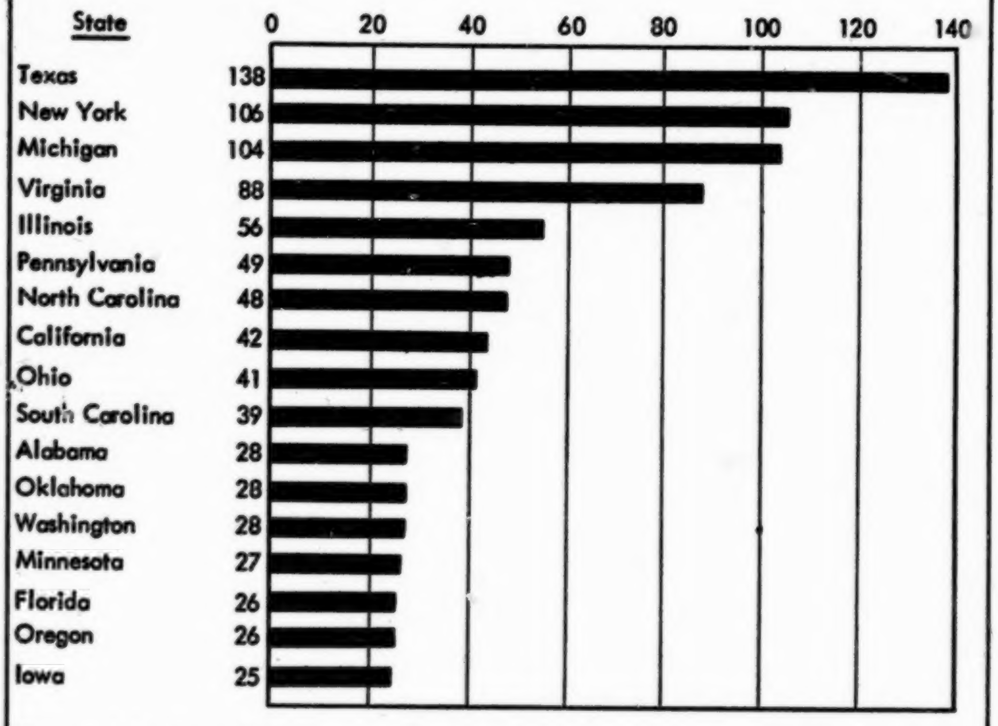
Vocational education in distributive occupations aided by Federal funds is restricted to part-time programs. On the high school level the schedule takes the form of a cooperative school-work program. During the year 1959–60, 20,121 boys and 18,183 girls were enrolled, a total of 38,304 students in 1,261 high schools.

The availability of vocational education in distributive occupations is much below that in the fields of agriculture, home economics, and trade and industrial education. Restriction of the program to cooperative training rules out students who wish to spend full time in school. In some cases it is difficult to find enough suitable jobs. Availability of vocational education in this field might be considerably increased by providing Federal aid for preemployment training programs.

Availability of vocational education in the field of trade and industrial education presents unique problems, for occupational specialization in industry is great; apprenticeship has important bearings on the trade and industrial program; job openings may be at some distance from where the student lives; and migration of industries to new locations affects the development of programs.

Each curriculum in the trade and industrial education program deals with preparation for a specific type of job, or a narrow range of closely related jobs. More than 80 occupational fields are represented in curriculums now offered, a number that would be increased considerably if the specialized curriculums within these fields were counted. Few, if any, communities in the Nation could possibly pro-

Figure 21.—Number of Schools Offering Cooperative Distributive Education Programs for High School Students, by State, 1959–60 [1]



The remaining States had fewer than 25 schools offering distributive education to high school students.

[1] From *Digest of Annual Reports*, 1959–60.

vide training programs for all these fields, yet the young people in small rural communities may have the same aptitudes for and interest in these specialized programs as students in large cities.

Employment Outlook

Vocational education programs are geared to the needs of employers. Much training for occupational life takes place outside the public schools, through training programs offered by other agencies and through on-the-job experiences. But much of the responsibility for helping to provide the training needed for entry jobs into agriculture, industry, business, and other fields, rests with the public schools. How well have they accomplished this task?

The *agricultural field* faces continuing needs for vocational education. "The explosive increase in the population in the United States and the world requires adequate supplies of food and fiber in order to have an acceptable standard of living and to help keep nations free."[3] While there is currently a surplus of certain farm commodities, this situation may not always prevail. The number of farms may decrease 10 to 20 percent in the next decade, from the 4.5 million at present, and a decrease in the number of farmers and farmworkers will be expected in the more than 7 million so employed at present. The high average age of many farmers and farmworkers indicates that relatively large replacements will be needed in the near future to meet losses due to death, retirement, and other causes.

Training in vocational agriculture is offered in about 10,000 public high schools serving farm communities. In 1959–60 approximately 464,000 high school students were enrolled in these programs, and about 70,000 complete all the training available each year. Since an average of 40 percent of these students remain in agriculture, there is an evident need to increase greatly the enrollment needed to provide the 100,000 replacements needed annually. With the increasing complexity of farm operations, there is also need to expand the content of the training programs.

In *home economics*, present programs in vocational and nonvocational curriculums are found in 95 percent of all high schools which enroll more than 100 students, and enroll a total of nearly 950,000 students.[4] The coverage in this field appears to be much more adequate than in the fields of agriculture, business, and industry.

The *distributive and marketing occupations* are undersupplied with vocational training programs. No preemployment programs are aided by Federal funds, and the enrollment in the cooperative programs in the high schools numbered less than 40,000 students in 1958–59. All high schools with more than 200 students might well provide some kind of distributive education program. The employment opportunities are large and are widely scattered.

Education for *trade and industrial occupations* presents probably the greatest challenge if the needs of employers are to be met. With less than 10 percent of the high schools of the Nation offering trade and industrial training programs, it is apparent that great gaps exist in available services to meet employment needs. Projections of the requirements of industry for skilled craftsmen in the years immediately ahead indicate a need of approximately 1 million per year, and an output based upon present programs (including those on the post-high-school level) of some 160,000.[5]

Training for *office occupations* has not been included under the vocational education programs aided by Federal funds. Programs in this field, however, are offered in probably over 80 percent of the high schools. Employment opportunities in this field are extensive and increasing. Training in this field provides opportunity for desirable expansion of the total vocational education program.

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[3] Office of Education. *Vocational Education in the Next Decade: Proposals for Discussion.* Washington: U.S. Department of Health, Education, and Welfare, 1961. p. 34.

[4] Coon, *op cit.*, p. 6.

[5] *Vocational Education in the Next Decade, op cit.*, p. 66.

Organization and Development of Programs

The administrative patterns utilized in the various States differ greatly. In Connecticut, the vocational education program is planned, administered, and financed directly by the State. In California, much of the program is provided by the junior colleges. In North Carolina, a statewide system of area schools is developing, with operating expenses met largely by the State, to supplement the programs in local school districts. States with county organization for all schools usually include the administration of vocational education programs under the same boards of education. In most States the programs are parts of the local school systems. Combinations of these patterns exist in some States. In New Jersey, county vocational education boards separate most vocational education from the rest of the public school system except at the State level. In Wisconsin, vocational education programs are conducted by a separate State board and a separate local administration.

Vocational education programs are found in comprehensive high schools, in vocational high schools, in technical high schools, and in area vocational schools. These schools may also provide training for adults.

In some States, a master plan has been developed for the State as a whole; in others, the planning has been piecemeal, with consequent gaps in the total program. In some places, any student in the State is eligible to attend a program of his choice; elsewhere a student living a short distance from a desired vocational program may be denied participation because his place of residence is outside the boundary of the school system which operates the program.

Little planning has been done to meet the needs of youth who will move from their rural communities to find jobs in urban areas. There has been little regional, interstate planning. Many programs are too small to function effectively. Statewide planning is receiving increased impetus, with close cooperation between State educational authorities and State employment agencies. Area programs are being developed in many States which provide training opportunities for youth in rural areas as well as for youth in urban settings.

Standardization of curriculums, even in occupational fields where the training needs are largely the same, has not progressed far. In the field of trade and industrial education, particularly, one provision of the Federal acts requires that a student spend half the schooltime in practical work aimed to prepare for a single-skill occupation. This has handicapped the development of curriculums that would fit the local conditions. In many local situations a better curriculum would be one aimed at a cluster of closely related occupations and providing basic training common to these occupations, with specialized training following the basic program either through apprenticeship or through specialized training offered at higher age and grade levels.

The development of basic programs underlying clusters of related occupations would seem to be especially desirable in small schools which cannot afford the expensive equipment needed for specialized programs in separate occupations. Such programs should not be confused with present industrial arts programs. Although they may have some common elements with industrial arts, the objective is distinctly different, as is the curriculum pattern. Curriculums would grow out of analyses of the occupations in the cluster toward which the program is directed and the selection of the common elements underlying all the occupations in the cluster. A curriculum basic to the metal trades, for example, would include the skills and knowledge common to such trades as auto mechanics, machine shop practice, welding, and sheet-metal work. The time allocations for shop and other subjects should be adequate, yet not subject to rigid regulations. Research will be needed to determine curriculum patterns for such programs.

Program planning for trade and industrial education in a great many of the schools has utilized the services of advisory committees made up of representatives of management and labor. In some schools, such a committee functions for each occupational field. In too many schools, the advisory committee does not function effectively. The importance of close working relationships between the vocational schools, labor, and employers in industry, business, and agriculture has long been recognized. In the field of trade and industrial education, there is need for the planning of effective working relationships between vocational schools and agencies of management and labor concerned with apprenticeship, to make certain appropriate credit toward apprenticeship will be given for vocational school accomplishments. A number of schools have worked out such plans.

An important aspect of program planning is the determination of the age and grade level at which a program should be offered. With increasing complexity in occupations, employers are demanding greater maturity and a higher level of educational attainment in the persons hired. High school graduation is the minimum for many jobs, and more jobs are requiring some training beyond the high school. The grade level at which programs are offered for specific occupational training has risen over the years, and today much of the training in the high school is in the 11th and 12th grades. In many States, distinct advances have been made in programs located at the 13th- and 14th-grade levels, in area vocational schools, community colleges, and other institutions. This movement may well be accelerated, to keep the training programs in pace with changing conditions.

Planning for plant and equipment has an important bearing on the effectiveness of programs of vocational education. The physical plant has not received Federal aid; some funds have been made available for equipment under recent legislation. In the early days of vocational education, many schools were located in buildings which had outlived their usefulness for other educational purposes. In the new vocational schools in the larger cities, in the area vocational schools recently built, and in the space provided for vocational education in the newer comprehensive high schools, there is evidence of recognition of the need for buildings that are functional and attractive. Still, too many programs are in structures in the wrong section of the city, unattractive, or not suited to the needs of a changing and expanding technology.

Equipment for laboratories and shops requires much planning effort, especially in such fields as trade and industrial education and technical education. A much larger financial outlay is required to equip a shop or laboratory properly today than was needed only a few years ago. Surplus Government equipment has helped many schools in providing well-rounded shop facilities; however, much of the available surplus equipment is too large and too specialized to be useful in schools.

Federal funds for instructional equipment have been of great assistance to the extent of their availability. Federal funds were made available for the purchase or acquisition of equipment by the George-Barden Act; however, since June 30, 1951, the amount that may be used for this purpose has been limited to 10 percent. In contrast, title VIII of the National Defense Education Act provides that funds may be used in any amount for instructional equipment.

Some schools show careful planning in the selection of specific types of equipment for shops and laboratories. Others seem to indicate that the equipment was purchased on a haphazard basis, without due consideration of the needs of the curriculum and the courses of study. In some cases, the machines and instruments purchased have been of a quality at variance with the real needs, either too high or too low.

Efficiency of Operation

Policies concerning qualifications of instructional personnel in the various vocational education programs, at State and Federal levels, have helped in maintaining quality in these programs. Careful selection of teachers and supervisors has been made in most programs, and provision made for the training of persons for these positions. However, teacher education has emphasized professional education, and has often neglected the updating of instructors in current technological content. The effectiveness of instruction has been impaired in some trade and industrial programs by having teachers perform much routine work, by asking them to prepare instructional materials that might have been purchased, by having them repair equipment in their shops and laboratories, or by giving them heavy responsibilities for productive work in shops. In some cases, the emphasis placed upon productive work has resulted in exploitation of students. Agricultural teachers have sometimes been required to handle classes in general education subjects when their vocational program has not been large.

Student selection is an important but difficult task. Great variations are found in the student qualifications necessary for success in different types of programs, which complicates the selection procedures. Vocational education students have generally been placed in separate classes, with relatively little mixing of those at different levels of the curriculum except where there is low enrollment. Optimum class sizes have been generally achieved. Most vocational schools operate close to their rated capacities with respect to student load, and some now accommodate many more students than were originally provided for.

Much less research than is needed has been done in the field of operational efficiency, and some research findings which might improve instruction have not been implemented. Little programed learning has been introduced, although it would appear that vocational education could utilize this type of instruction effectively. Further research in instructional procedures might well bring forth findings which, if implemented, could raise instructional effectiveness appreciably.

Prestige of Programs

The prestige or status of an educational institution usually has to be earned, and the development of prestige takes time. This was true with the early engineering and agricultural colleges developed through Federal aid provided in the first Morrill Act. Vocational education programs at the secondary level have faced a similar task in attaining the status they now hold. In the early years following the passage of the Smith-Hughes Act, the grade level at which trade and industrial programs were offered, and the intellectual level of the students enrolled, were below the standards of the academic programs of the high school. The vocational programs were often housed in poor buildings, and equipment for shops was meager. Students who failed in academic programs were assigned to vocational curriculums. The prestige and status of the programs were low.

Technical high schools have enjoyed rather high status from the beginning. Although today many trade and industrial programs have relatively low prestige, many others command high respect. Attractive and functional new buildings today are often equal to those used for academic instruction. Space devoted to vocational instruction in comprehensive high schools is of the same quality as that for other programs.

Vocational agriculture has not faced as much difficulty in attaining status as has been the case with trade and industrial education, since it has been closely tied in with the academic programs and has largely been operated within an environment which recognizes its importance.

Preparedness To Meet Changing Conditions

In past years the vocational education programs in the high schools have made important contributions to national emergencies. They trained many thousands of war production workers, provided special programs for food production and food preservation. When emergencies occurred, as in the two World Wars, the vocational schools responded promptly and effectively. If adequate funds were made available and urgent needs satisfied, these schools could again respond quickly to emergencies.

When new industries enter an area, when changes in occupational distribution occur within a community, or when other changes occur which have impact on the economy, the vocational education curriculums should also change. Sometimes there is considerable lag, for the momentum of going programs resists change. Especially is this true when programs need to be deemphasized or abandoned.

Vocational education programs are rising in the age and grade level at which they are offered. The greatest expansion today lies in programs beyond the high school. Nevertheless, there will be continuing need for programs on the high school level. When programs within the high school are curtailed or changed, the vocational educator faces the task of making appropriate provision for students now enrolled in high school vocational curriculums. Needed are broader basic programs of instruction to provide education for the tasks which are common to occupations within a closely knit cluster, in contrast to present training for single occupations. This is one of the important challenges that lie ahead.

Youth With Special Needs

Forgetting momentarily those needs of youth which are formally connected with *special* education and rehabilitation (the physically handicapped—the blind, the hard of hearing, the crippled, and a host of others), there is a whole gamut of other needs which might be termed "special." These students are sometimes called potential dropouts, disinterested, reluctant, disadvantaged, alienated, or culturally deprived. Other youth problems are recognized in connection with the minorities, the migrants, the mentally retarded, the emotionally disturbed, and the delinquent. Altogether, the number represented in these classifications is very great; the "dynamite" generated as a result may be social, political, and economic, especially in large population centers. These young people are of grave concern to the Nation.

For many reasons these and other students not represented in the classifications above become the dropouts, the early leavers of a system of mass education. Many of them feel that, in view of the academic nature of the school program and the hierarchy of teachers' marks, they are failures and do not belong in school. Their interests and aptitudes may be different and more related to the motor skills and practical aspects of learning. It is probable that in this context many of them may be gifted or talented if this classification can be defined in psychomotor learning. Usually the intelligence they display is nonverbal; their strength is not in the symbolic and abstract, although they seem to be able to sometimes master this deficiency through strong interest and motivation, occasional success and recognition, and realistic application. School, many of them conclude, is a waste of time.

The apparent lack of interest and motivation is a serious problem to these students and to the school which recognizes diverse needs and individual differences. Many of them have not considered what they will do upon entering the labor market. Others have had unrealistic and arbitrary goals set up for them by parents, teachers, other adults, and companions. On the whole, there seems to be a severe lack of occupational information and vocational guidance of a nondirective nature appropriate to their individual needs and characteristics.[6]

Considerable inquiry and research have been devoted to dropouts and school leavers. A study by the Bureau of Labor Statistics reveals numerous new insights into the labor experiences of high school graduates and dropouts. Most important in this respect, the study submits some suggestions and hypotheses concerning the school leaver and his relationship to the educational and guidance process in the public schools. Out of the study, which involved seven geographic areas of the United States and represented a universe of 22,000 school leavers (12,000 high school graduates and 10,000 dropouts), the implications summarized below seem to be predominant to the concern for youth with special needs:[7]

> 1. Dropouts do not form a neat homogeneous group with unique problems. They are characterized by innumerable individual differences. Some do have low IQ's, but others are well up on the IQ scale. We can best approach these boys and girls in the same way in which we try to deal with all of the rest: each as an individual with his own interests, talents, and aptitudes.
> 2. Experience [of the study] with these boys and girls points to this fact: That the problems which finally result in a dropout begin—and are quite overt—way back in the elementary school. In fact, it is quite early in grade school that many of the potential dropouts begin to fall behind in their scholastic achievement, a process which results in retardation.
> 3. Most of the dropouts expressed some dissatisfaction with the school programs available to them. These expressions of dissatisfaction may be—at least in part—rationalizations of young people because of their very action in leaving school. But these responses were prevalent and consistent enough to warrant the suggestion that it may be worthwhile to take a hard look at the curricula available for persons such as these. The fact that many dropouts do return after several years' absence and from the vantage point of hard out-of-school experience, in search of specific courses which they consider of particular value in advancing them in their career development, points to the possible rewards we might reap from such a course of action.
> 4. Finally, some of the findings are relevant to the manpower position of the United States. It is doubtful whether the dropouts—and perhaps

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[6] These issues are developed further in the section on "Occupational Information and Vocational Guidance" in chapter 8.

[7] Seymour Wolfbein, "The Transition from School to Work: A Study of the School Leaver," *Readings in Unemployment*. Prepared for the Special Committee on Unemployment Problems, U.S. Senate, 86th Cong., 1st sess. Washington: U.S. Government Printing Office, 1960, p. 712–714. (Condensed from the original.)

> even many of the high school graduates—represent a strategic loss of potential college-trained personnel. This is not true, however, in relation to our manpower needs for trained skilled workers. A good share of the dropouts, for example, might have made the grade as skilled, highly trained blue-collar workers—if they had stayed in high school until graduation and thus become eligible for training programs in these fields. Skilled labor, becoming increasingly complex as it is, is more and more requiring minimum levels of educational attainment. For instance, the Department of Labor currently lists 60 skills which are in short supply, and each of them requires at least a high school education.

Another serious element, especially for young people with special needs, is unemployment and its relationship to society and to the Nation's economy. The urgency of the problem has led to the President's proposal of August, 1962 to: (*a*) provide on-the-job training to young people between 16–22 years of age over a 3-year period, (*b*) provide federally aided job opportunities in public service and on local public works projects, and (*c*) set up a youth conservation corps somewhat on the model of the Civilian Conservation Corps of the 1930's.

That youth unemployment is closely related to the fact that they have few marketable skills is a vital concern of the great cities.

> We must recognize and deal with the disturbing problem of the *untrained* adolescent. The fact remains that the unemployment rate for students who have not completed high school is about 30 percent, about twice as high as it is among those who have been graduated. Many become wards of State and local agencies. It may well be wiser and cheaper to keep them in training institutions until they learn a useful skill or service rather than to allow them to loiter until they become delinquent or criminal.[8]

The concern of the great cities for the unemployment, lack of training, and delinquency of youth is well documented. The Secretary of Labor in July 1961 indicated that 450,000 young people were unemployed the previous fall, and that an additional 800,000 would be seeking jobs by 1965. The attendant social problem is critical.[9]

> We need not belabor here the social evils that could grow out of a situation in which more than a million active, energetic, restless young Americans have no useful means of occupying their time.
>
> Suffice it to say on this point that spokesmen of the National Conference of Juvenile Court Judges, meeting last month in San Francisco, described the growing numbers of unemployed in the 16–22 age bracket as an "army of youngsters roaming around at loose ends, creating a tremendous delinquency potential."

A closer look at one of the cities develops some startling facts. Cleveland's *Unemployed Out-of-School Youth Survey*, a study of a

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[8] Research Council of the Great Cities Program for School Improvement, *Education for Tomorrow's World of Work*. Chicago: The Council, 1962. A special report prepared for the Panel of Consultants on Vocational Education.

[9] "Wasted Years of Youth." Extension of remarks of Hon. Julia B. Hansen. In appendix of the *Congressional Record*, Sept. 19, 1962, p. A6938.

1,200-youth (age 16–22) sample involving over 9,000 separate household contacts, presents impressive findings and implications of youth unemployment, particularly of nongraduates.[10]

> Approximately *two out of three* (63 percent) of the out-of-school youth, age 16–21, are unemployed.
>
> Approximately *one out of three* (33 percent) of the unemployed are high school graduates. *One out of two* (53 percent) completed the ninth grade. A total of 67 percent of the unemployed are nongraduates.
>
> Approximately *three out of four* (73 percent) of the nongraduates are unemployed.
>
> Two-thirds (67 percent) of the unemployed expressed a feeling that they could obtain employment if they could obtain training in a school.
>
> Almost *three out of four* (71 percent) of the unemployed in the three areas largely populated by Negro children thought they could obtain employment if they could obtain training in a school. Less than *one out of two* (48 percent) of the unemployed in the Near West Side expressed a similar opinion.

The Cleveland study raises some serious questions.

1. Can the unemployed youth pull themselves up by their own bootstraps? Do they want to? What are the obstacles which prevent them from helping themselves?
2. Why is unemployment so prevalent in communities populated by Negroes? Is racial discrimination a major cause factor?
3. What can be done to improve the employability of the unemployed? What are the individuals themselves doing to solve the problem? What services can be established to enable the unemployed to help themselves?
4. Is the school curriculum realistic? How can the staff and facilities of the schools be utilized more effectively to prevent further accentuation of the problem?
5. What are the roles and responsibilities of industry, labor, and social agencies in relation to the growing armies of unemployed youth?
6. What does widespread unemployment among youth mean to the community in terms of responsible citizenship, productivity, and strength?

Sensitive teachers and other educators attempt to help divergent, atypical young people, but often they are handicapped by lack of special competence and training, lack of specialized referral services, lack of parental cooperation, lack of adequate time, equipment and facilities, and many other insufficiencies.

Over the years there have been many efforts on the part of the public schools to make provisions for special needs. The Opportunity School of Denver, Colo., is an outstanding example. The age range of its students since its establishment in 1916 has been from 16 to over 70.[11] The aims of the school's founders are notable:

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[10] *Unemployed Out-of-School Youth Survey.* Bureau of Educational Research. Cleveland: Cleveland Public Schools, 1962, p. 8, 12. [Italic in the original copy.]

> To provide the fundamentals of an education for those persons who had been deprived of school advantages in youth.
>
> To provide a working knowledge of many of the trades and industries.
>
> To offer opportunities to men and women already in mechanical and industrial pursuits who have the ambition to become more efficient workers.
>
> To give boys and girls another chance who for various reasons did not fit well in the regular public schools.
>
> To give people born in other countries a chance to learn English and also to prepare them for naturalization and citizenship.

The *continuation and part-time school* is another example of attempts by the States under the Smith-Hughes Act to cope with the needs of youth. The 10 purposes of the continuation school as they were listed in 1924 continue to be appropriate in 1962.[12]

1. Give every youth as a fundamental service, the necessary minimum of *ability to use the fundamental arts* of reading, writing, and figuring.
2. Help him *remove those removable physical defects* that are a handicap to him for life and for work.
3. Some help in his problem of *keeping physically fit.*
4. Getting and holding a juvenile job and planning for a more permanent career.
5. Planning and *carrying out activities for his leisure time.*
6. *Acquiring a love of reading.*
7. Expanding his *interests, appreciations, and hobbies.*
8. *Selecting and practicing desirable social and economic habits.*
9. *Developing interest and initiative in social affairs.*
10. *Acquiring desirable social attitudes and working ideas.*

It is evident that the large cities of America have made provisions, however inadequate, for youth with special needs. Since 1956, the Research Council of the Great Cities Program for School Improvement has concentrated study and research on youth needs and their relationship to vocational education. The council has recognized 12 postulates or propositions, each of which is important to the youth problem. One of the propositions is particularly addressed to the problem of the reluctant learner:

> PROPOSITION No. 11
>
> *Preparation of the reluctant learner for occupation usefulness requires special studies.*—This reluctant learner group provides a large percentage of the socially maladjusted. These maladjusted will be identified as they approach physical maturity. Vocational education which prepares for a

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[11] Emily Griffith and William H. Smiley, *The Opportunity School.* Denver: Denver Public Schools, 1926, p. 9.

[12] Franklin J. Keller, *Day Schools for Young Workers.* New York: The Century Co., 1924, p. xx. [Italics are in the original.]

> job may be the motivating force which creates a desire and an interest for some reluctant learners to seek skills and knowledge for getting and holding a job. To assume that vocational courses should be used as the haven for reluctant learners, however, may be detrimental to the overall program of vocational education and to the well-being of the other pupils. In this connection, the guidance program and the offerings will need to be studied and appropriate changes must be made in the counseling with prospective students in vocational or comprehensive high schools.[13]

The Research Council reports the various practices and provisions for special needs of youth within a four-point classification: (*a*) potential dropouts (*not* the socially maladjusted or delinquent); (*b*) mentally and physically handicapped; (*c*) unemployed, out-of-school youth; and (*d*) delinquent and potentially criminal.[14] Possibly the most important insights to be drawn from this classification are that (*a*) ways and means are being discovered in which vocational education can assist these youths; (*b*) the four problem groups and the complex nature of the youth problems within them are not distinct and clear cut; (*c*) school-community cooperative relationships are vital; and (*d*) the overall problem of diverse youth needs in the large cities poses one of the major economic and social dilemmas of the Nation.

There is overwhelming evidence that the problems which make up the complex are old, traditional problems. There is ample evidence that public vocational education can assist many young people and help alleviate the problems. Juvenile crime statistics supply evidence which should indicate the price to society. Sadly lacking is evidence that national, State, and local concern and support are sufficiently aroused and forthcoming to make positive impact upon the problem.

On the whole, vocational education has been largely for selected students. Formal attempts to meet the special needs of youth have not been extensive, although there have been some programs for the handicapped and maladjusted in special education and vocational rehabilitation. In special education, pupil activities have been usually carried on in special classrooms or laboratories, and the nature of the instruction has not been related to occupations and the world of work.

The provisions of the public schools through their vocational education programs for these youth should not be interpreted as panaceas for the overall social problem. As vocational education gains experience from practice and experiment, it can alleviate some aspects of the problem, but it can never provide the complete solution. Society must realize that the social problem is rapidly being compounded by unemployment, urbanization, mobility, and technological change. Limited experience with these young people suggests that vocational education programs with specific objectives can assist them. Such assistance should not be confused with the regular program of vocational education. But those youth who have not reached their levels in the regular grades, those who have become misfits, and those who are retarded and maladjusted for any reason could derive great benefits from appropriate vocational education.

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[13] *Vocational Education in the Large Cities of America, op. cit.*, p. 10.

[14] *Ibid.*, p. 24–39.

Specifically, vocational education programs for youth with special needs should recognize that—

1. A strong program of vocational guidance and counseling should be maintained.
2. Youth with *physical* or *mental* handicaps can profit from vocational education programs and courses appropriate to their needs and limitations.
3. Careful selection and grouping should be made on the basis of aptitude, mental capacity, limitations, and needs; these students should not be enrolled in the various classes of the regular vocational program.
4. The occupational objectives of special-needs courses and programs may appropriately include training for occupations which are less than skilled and which may be limited in range and scope.
5. Definite provisions must be made for the continuing basic education of these young people, including diagnostic and remedial measures to assure competency in the foundation skills and citizenship and success in the world of work.
6. Some of these students may benefit from training for entering the regular vocational programs. Others may require more specialized training leading directly to employment when they leave school.
7. Teachers with specialized competencies should be utilized in the planning, teaching, and evaluation of programs for these students.
8. An active program of placement and followup, including appropriate referral services, should be an integral part of the program.
9. Continuing programs of experimentation, research, and evaluation, involving multiple cooperative relationships at all levels, should be initiated and maintained.

Post-High-School Youth and Adults

Although most of the programs of vocational and technical education operated by the public schools and aided by Federal funds are offered to high school students, a substantial and increasing number of programs are provided for recent high school graduates, for high school dropouts who desire to attend school full time, and for adults. This section of the report deals with programs offered beyond the high school for these people. Attempt is made to appraise the programs from the standpoint of how well they have been organized and developed, the achievement of their stated goals, their operating effectiveness, their status, and their preparedness for the changing conditions that lie ahead.

The development of vocational and technical education programs designed to meet the needs of persons beyond the high school has been a gradual one, with considerable acceleration in recent years. The upward shift in age and grade level stems largely from outside the educational system. Employers must have more mature workers to deal with the complicated machines, instruments, and problems of present-day work conditions. Apprenticeship now usually demands high school completion as an entrance requirement. Mature youth and adults cope with changes more effectively; the costs of mistakes on the part of workers are higher than in former years. Social pressure for keeping youth in school longer has also been an influence on the program.

Other reasons for the upward shift are found within the education system. The cost of equipment for vocational-technical programs is increasing, and comprehensive high schools cannot afford to provide the special equipment needed for the highly specialized programs. Schools of area type are needed to provide optimum enrollments and to meet the needs of widely scattered persons who desire specialized training. The prestige of the post-high-school institution facilitates the enrollment of persons who do not want to go back to high school for their further education. For instance, implementation of the recent Federal legislation for retraining adults to reduce unemployment is generally easier in institutions beyond the high school.

Many different types of institutions provide training programs for persons who are out of high school. Some of these institutions, such as the junior or community college, are comprehensive in type; others, such as a textile school, are highly specialized, dealing with only one occupational field. There is no standardization of titles. Programs develop wherever an institution is in a position to meet the vocational education needs of post high school youth and adults.

Preparatory vocational and technical training programs for youth and adults are available in other agencies, as well as in the public schools. Many institutions of higher education which do not receive Federal aid under the vocational education acts offer vocational and technical type programs that do not lead to baccalaureate degrees. Industry trains thousands. The armed services provide many programs for civilian personnel and for the Armed Forces, with many of the latter programs having a carry-over into civilian life. State and Federal correctional institutions provide training for inmates.

Titles of Institutions Offering Preparatory Trade and Industrial Programs for Adults[1]

- Adult education center
- Adult technical school
- Adult vocational center
- Agricultural and mechanical college
- Area technical school
- Area trade school
- Area vocational school
- Area vocational technical school
- City college
- College
- Community college
- County trade school
- County training school
- County vocational school
- County vocational technical school
- County vocational technical high school
- County vocational technical institute
- Education center
- High school
- Industrial education center
- Institute for deaf and blind
- Junior college
- Opportunity school
- Polytechnic college
- Rehabilitation center
- School of technology
- School of trades
- School of vocational and adult education
- State college
- State college school of industry
- State school of science
- State teachers college
- State technical institute
- State technical school
- State university
- State vocational technical school
- Technical high school
- Technical school
- Textile school
- Township high school and junior college
- Trade school
- Trade technical college
- Trade technical school
- Vocational and adult school
- Vocational high school
- Vocational technical center
- Vocational technical institute
- Vocational technical school

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[1] *Preparatory Trade and Industrial Training Programs in Public Schools: a Directory: 1961–62, op cit.*

Various State and Federal agencies offer full-time training for employees.

Private trade schools, private junior colleges, home study programs, and other private institutions offer programs of vocational and technical education. An appraisal of how well the existing training programs meet the needs of the Nation must take into account all of these agencies, as well as the programs within the public schools.

The curriculum offerings available for full-time study include many occupational fields and scores of occupations. In fields related to engineering, curriculums include aeronautical, air conditioning, architectural, chemical, civil, electrical, industrial, mechanical, metallurgical, and other aspects of engineering. In other fields, programs are offered in agriculture and forestry, applied and graphic arts, business and commerce, health service, home economics, and public service. The programs vary from short intensive training for occupations of narrow scope to programs 2 years or more in length for occupations of a highly skilled technician type.

An important type of institution for vocational and technical training is the area vocational school. Area vocational education programs are well defined by their name. They have two outstanding characteristics: (*a*) they are vocational in nature, providing training which leads to employment in specific occupations; and (*b*) they serve students of more than a single community or local school district.

Area vocational schools are found in urban or rural types of communities. Those in urban settings provide short-term or part-time programs as well as preemployment training; those in nonindustrial areas often provide only preemployment training.

The scope and the level of the area vocational and technical programs vary widely. Some schools include agriculture and business training; many of them limit their offerings to the industrial field. The latter schools are mainly concerned with providing training for the skilled trades, though recently many of them have developed programs for the technical occupations. With the increasing demands of industry for technically trained personnel, this phase of training is now receiving much attention.

Various administrative patterns have developed for area vocational schools. Some are administered and financed directly by the State, some are organized and supported on a county basis, and some are developed through the cooperative action of several school districts. The administrative patterns are influenced greatly by statewide patterns of school organization, by the degree of industrialization of the State, by the density of population, by the extent of local programs of vocational education, and by other factors. Each pattern grows out of individual needs of the State. Funds made available under title VIII of the National Defense Education Act of 1958 have increased the interest in this type of school. These funds are limited to programs for the training of highly skilled technicians in area-type programs.

The junior or community college is becoming an important factor in program development in vocational and technical fields. In its early years, the junior college operated so that students could obtain the first part of their college work in their home communities. Gradually these institutions introduced vocational education programs in business and other fields. Today the range of curriculum offerings is wide. College lower division or transfer programs, including preprofessional programs, are offered as well as vocational and technical programs in agriculture, applied and graphic arts, business and commerce, health service, home economics, and many industrial occupational fields.

Vocational education programs in the junior colleges may require high school graduation, or some programs may admit any student who is of a specified age and can profit from the instruction. One study indicated that nearly half the full-time students were over 22 years of age. Some 600 junior and community colleges, public and private, are found today in the United States, and a considerable number of them offer vocational education programs.[15]

Curriculum patterns of vocational and technical education in institutions beyond the high school differ considerably from those found in programs for high school youth. Usually they concentrate on the vocational content, with less general education. Youth and adults attend these institutions for the purpose of preparing themselves for work as quickly as possible.

Program Scope and Needs

The types of persons beyond high school age who need vocational and technical training include youth who have been graduated from high school and desire to undertake post-high-school training directly following high school; youth with some experience of miscellaneous type who see need for training if they wish to get ahead; and adults who need training for a new occupation because of unemployment caused by automation, changes in the demand for products, or for other reasons. In the changing pattern of occupational life, many adults face several changes in occupation during their working life.

Young people and adults who have been out of school for some time face certain handicaps in returning to full-time training. Many of them have lost their study habits. Some of them are fearful of lack of success, or do not want to reveal their lack of knowledge. Many of them face economic problems, with families to support while they are in school. Their needs are diverse. Some need only a short period of intensive training which prepares them for a single-skill operation; others need extended training in the skilled crafts, technical occupations, agriculture, health occupations, or business fields.

To meet these needs, the public schools are offering a wide range of instruction. Figure 22 shows the range of curriculum offerings in the field of industrial and technical education. The list includes a total of 1,810 curriculum offerings in different occupational fields, and a total of 2,009 specific curriculum offerings when subdivisions in certain fields (grouped for the purpose of tabulation) are counted.

Three of the highly industrialized States—Massachusetts, New York, and Ohio—had no public programs for out-of-school youth and adults when the data were gathered. Programs within these States

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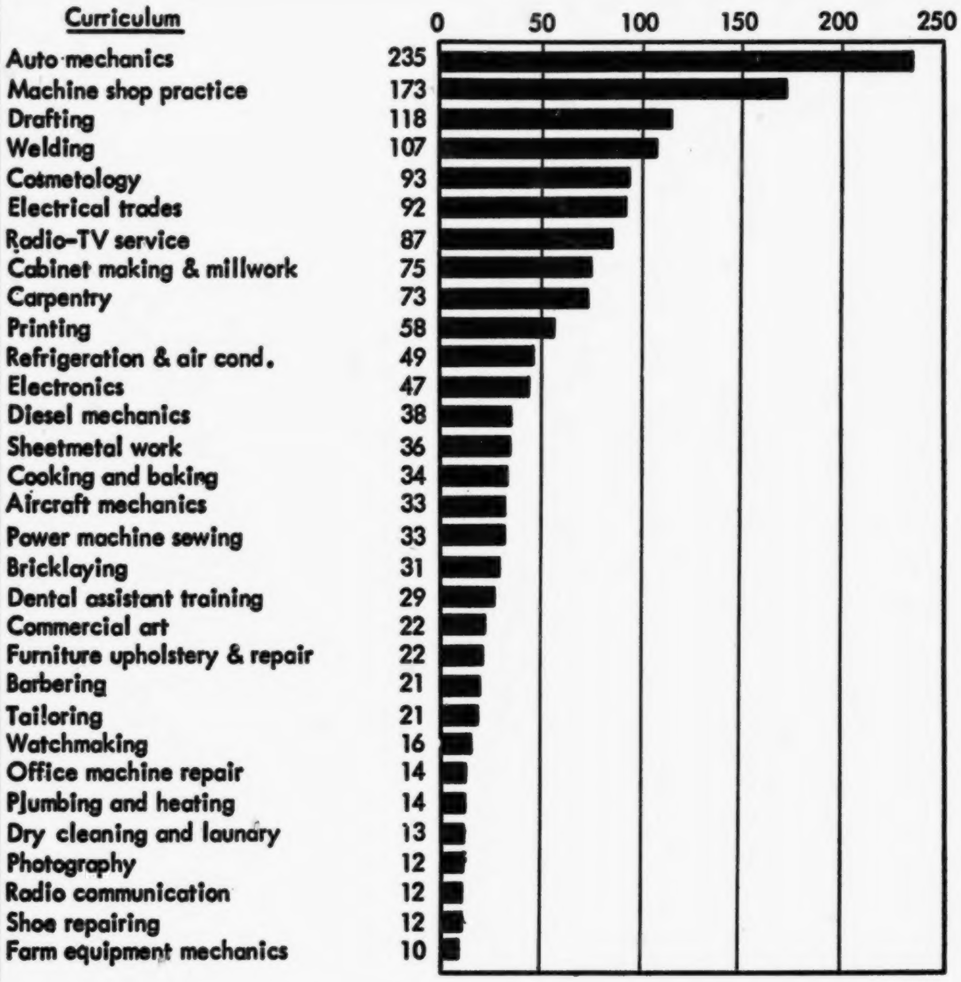
[15] For further discussion of the junior college as a vocational and technical training institution, see: Lynn A. Emerson, *Technical Training in the United States*, *op. cit.*, ch. 9.

Figure 22.—Preparatory Trade and Industrial Curriculum Offerings for Adults, by Curriculum, 1961–62[1]



Less than 10 curriculum offerings: Appliance repair, boat building, building construction, cafeteria management, civil technology, chemical technology, clothing design, commercial aviation, commercial fishing, dental technician, dietetics, domestic service, drafting and design, dressmaking, driving (commercial vehicle), electrical technology, electronic assembly, forging, foundry work, gasoline engine mechanics, general industrial shop, gunsmithing, heavy automotive equipment repair, horseshoeing, hospital aide training, hotel housekeeping, industrial cooperative training, industrial electronics, instrumentation, janitor training, jewelry repair, knitter fixing, lumbering and forestry, maintenance mechanic training, masseur training, mechanical technology, medical assistant training, medical laboratory technician, metallurgy, metal trades, millinery, optical mechanics, patternmaking, painting and decorating, peace officer training, plastering, plastic molding, petroleum processing, power plant engineering, PBX operating, production processes, radio and electric partsmen, stagecraft, surveying, telegraph operating, telegraphy and telephony, technical illustrating, TV production, textile manufacturing, tilesetting, tool and die making, tool and die design, waiter and waitress training, weaving.

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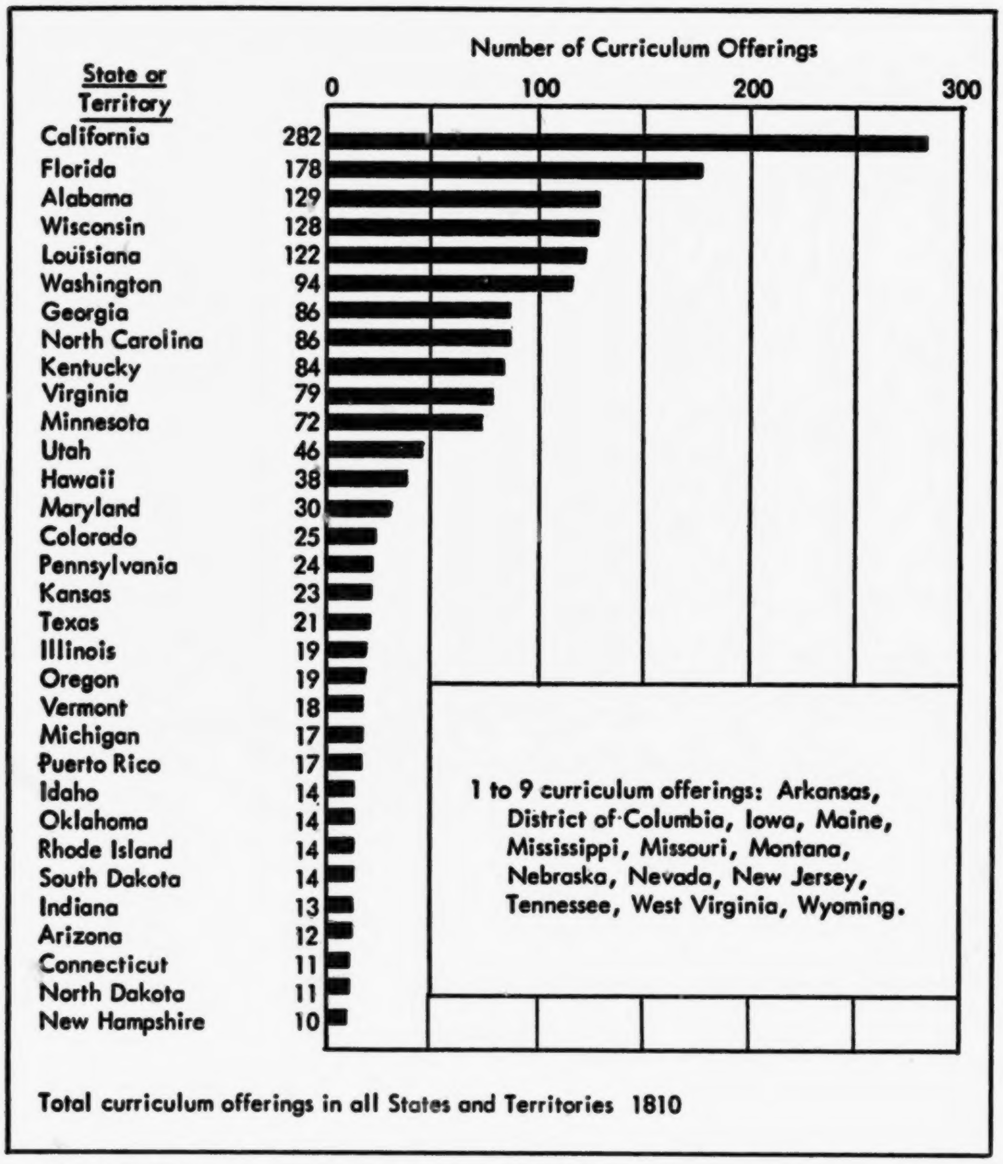
[1] Sam W. King, *Preparatory Trade and Industrial Training Programs in the Public Schools, a Directory: 1961–2.* Washington: U.S. Department of Health, Education, and Welfare, 1962.

Figure 23.—Preparatory Trade and Industrial Curriculum Offerings for Adults, by State, 1961–62 [1]



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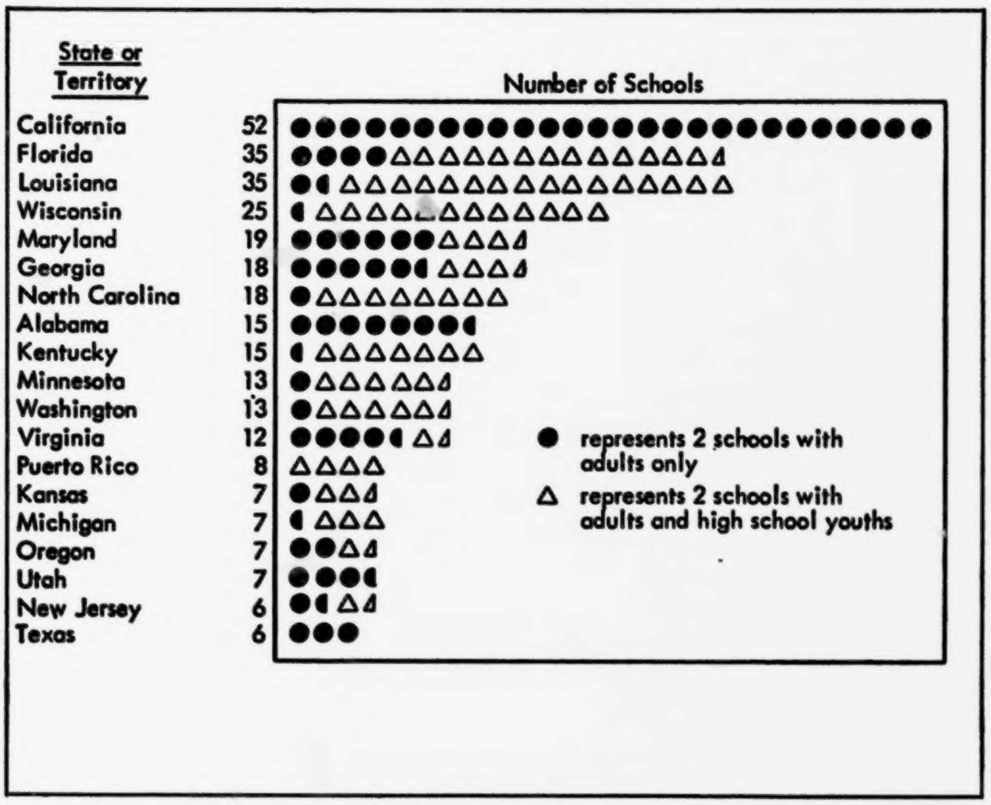
[1] Sam W. King, *Preparatory Trade and Industrial Training Programs in the Public Schools, a Directory: 1961–2.* Washington: U.S. Department of Health, Education, and Welfare, 1962.

are now being developed under the Area Redevelopment Act and the Manpower Development and Training Act. California, with its extensive system of junior colleges, has offered this type of program for many years. It should be noted that the data in figures 22 and 23 do not include many programs operated under title VIII of the National Defense Education Act, nor other curriculum offerings in technical education which do not receive Federal aid, such as those in the community colleges and technical institutes in New York State.

Figure 24.—Number of Schools Offering Preparatory Trade and Industrial Education Programs for Adults Only, and for Both Adults and High School Students, by State, 1961–62 [1]



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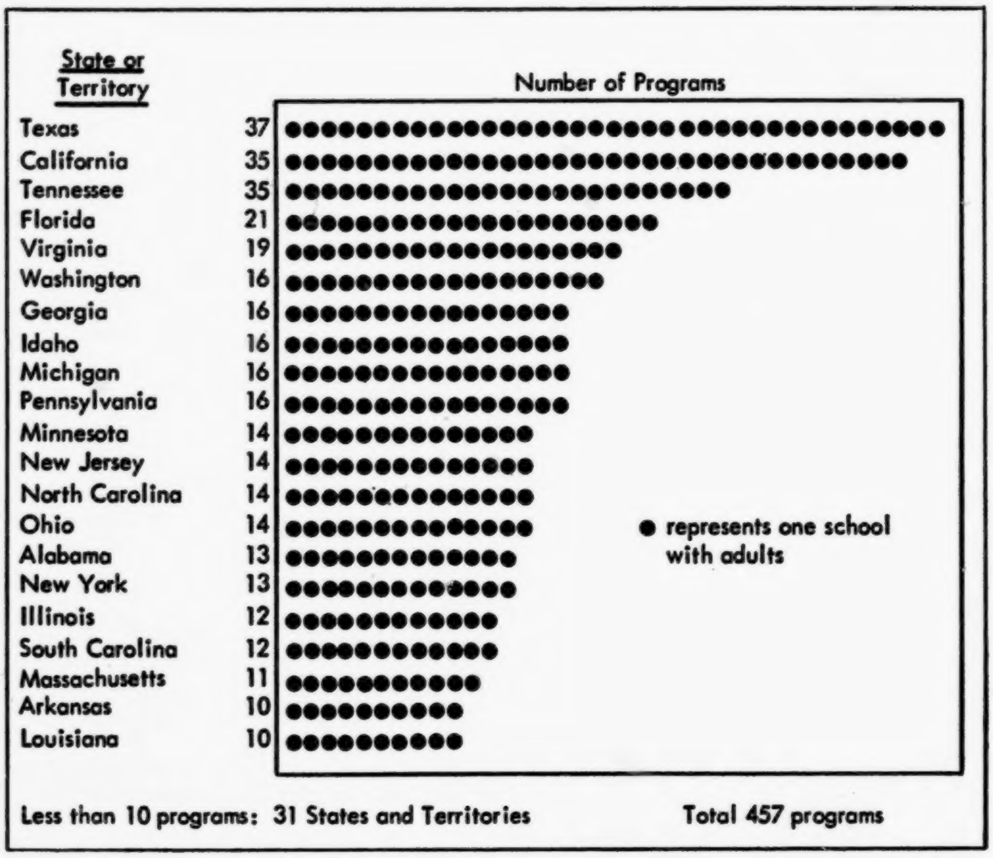
[1] Sam W. King, *Preparatory Trade and Industrial Training Programs in the Public Schools, a Directory: 1961–62.* Washington: U.S. Department of Health, Education, and Welfare, 1962.

Figure 24 shows the number of schools offering preparatory trade and industrial programs for adults and for high school youth. California separates these programs, as do Alabama, Utah, Texas, and several of the other States which have relatively few schools.

Programs of practical nurse training for adults are shown, by State, in figure 25. These programs, aided by Federal funds under title II of the George-Barden Act, have increased rapidly in recent years.

Technical education programs operating under title VIII of the National Defense Education Act enrolled 39,224 persons in preparatory programs in 1960–61, of which 27,446 were of postsecondary level. Some of these students were in advanced programs offered by high schools; the remainder were in institutions beyond the high school.

Figure 25.—Practical Nurse Training Programs for Adults, by State, 1961–62 [1]



[1] Sam W. King, *Preparatory Trade and Industrial Training Programs in the Public Schools, a Directory: 1961–62*. Washington: U.S. Department of Health, Education, and Welfare, 1962.

The tabulation below shows the distribution of enrollments in technician training for 1960–61: [16]

State	*Enrollment*	*State*	*Enrollment*
California	8, 123	Montana	47
Colorado	349	Nevada	21
Florida	726	New Mexico	60
Idaho	250	North Dakota	168
Illinois	327	Oklahoma	627
Indiana	15	Oregon	197
Iowa	105	Texas	805
Kansas	70	Utah	116
Maryland	166	Washington	267
Michigan	2, 200	Wyoming	14
Mississippi	220	Puerto Rico	58

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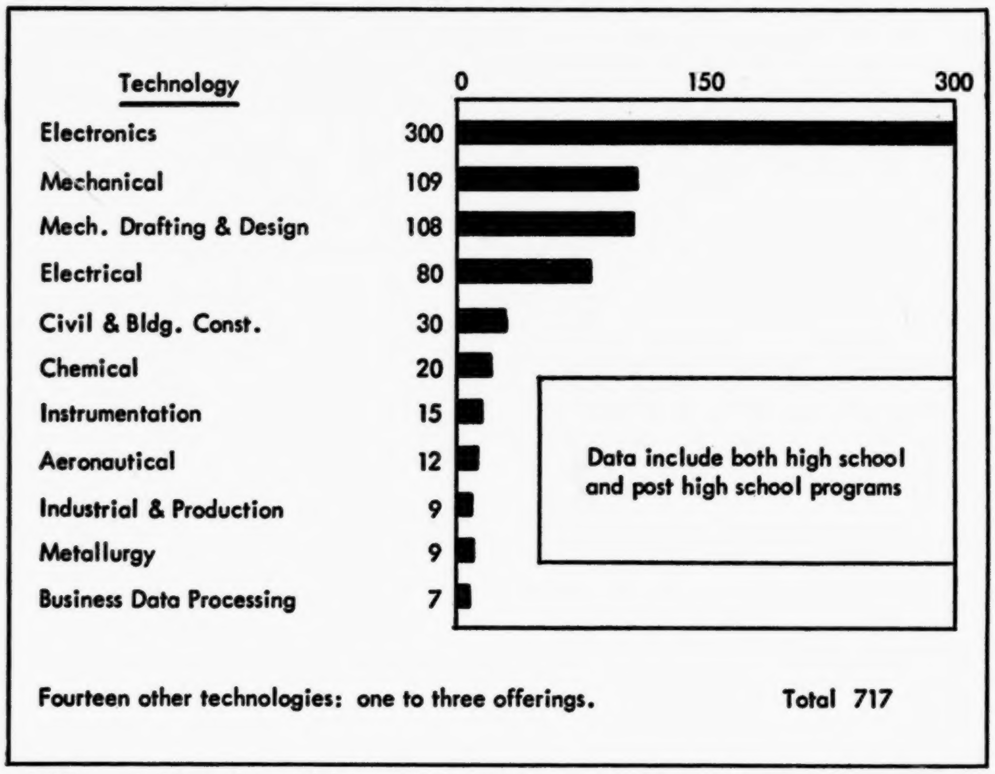
[16] Data supplied by the Technical Education Branch, Division of Vocational and Technical Education, U.S. Office of Education (provisional figures).

Table 27.—Number of enrollees in preparatory programs under National Defense Education Act (title VIII), by type of school and level: United States, 1960–61 [1]

Type of school	Level of program		
	Both levels	Secondary	Post secondary
ALL SCHOOLS	39,224	11,778	27,446
Comprehensive high school	4,601	3,654	947
Vocational-technical high school	4,467	1,432	3,035
Technical high school	5,968	4,988	980
Vocational or trade school	6,404	1,316	5,088
Technical institute	1,828	108	1,720
Community or junior college	13,743	250	13,493
4-year college	1,830	21	1,809
State board for vocational education	383	9	374

[1] Office of Education, Division of Vocational and Technical Education, Technical Education Branch. *Progress of the Title VIII Programs, 1961.* Washington: U.S. Department of Health, Education, and Welfare.

Figure 26.—Preparatory Curriculums Under Title VIII, NDEA, by Technology, 1960–61 [1]

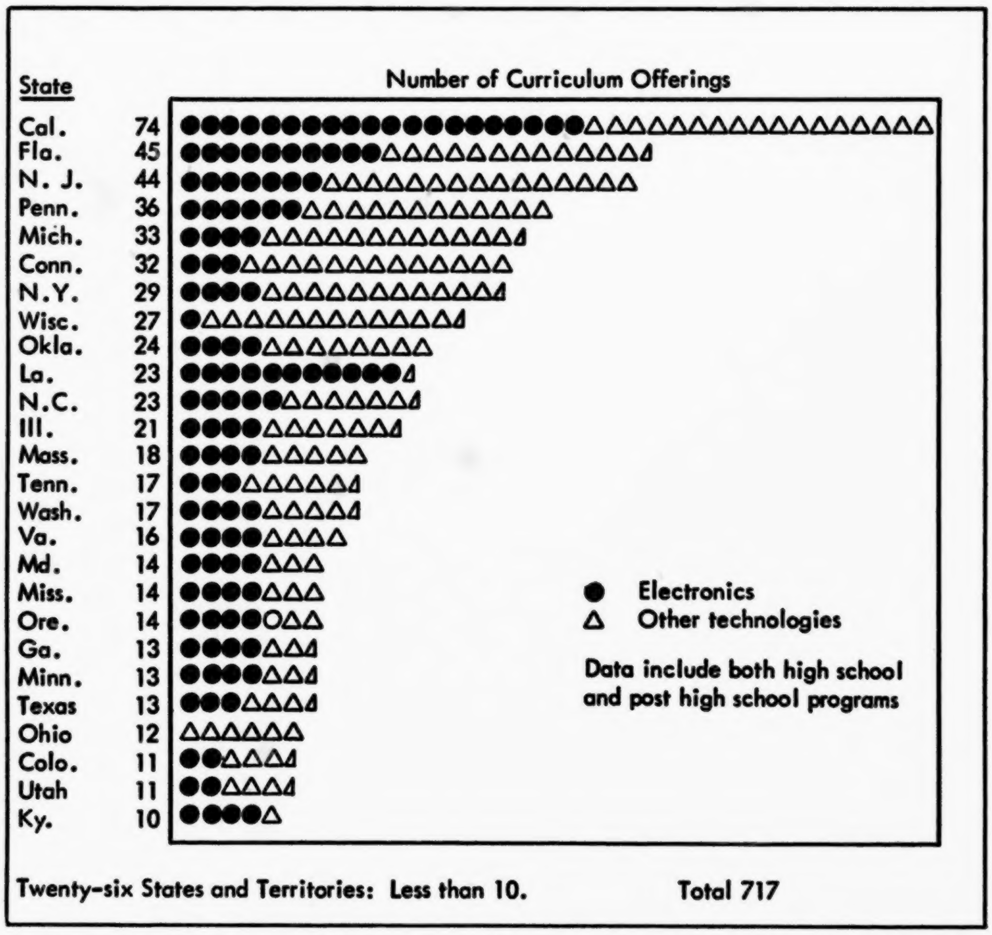


[1] Office of Education, Division of Vocational and Technical Education, Technical Education Branch, *Directory of Title VIII Area Vocational Education Schools and Programs, 1961.* Washington: U.S. Department of Health, Education, and Welfare, 1962 (mimeo).

The major fields in which preparatory curriculums are offered in title VIII programs are shown in figure 26, together with the frequency of these offerings. The electronic, mechanical, and electrical fields predominate, with nearly 75 percent of the total curriculum offerings. Although the data in figure 26 include both high school and post-high-school programs, some 70 percent of the enrollments are in programs beyond the high school.

The curriculum offerings, by State, are shown in figure 27, with data on the number of offerings in electronics compared with those in all other technical fields. The figure illustrates the wide diversity among the States in the types of curriculums offered. The popularity of electronics is understandable in the light of the present demand for electronics technicians, yet one may question whether an appro-

Figure 27.—Preparatory Curriculums Under Title VIII, NDEA, by State, 1960–61 [1]



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[1] Office of Education, Division of Vocational and Technical Education, Technical Education Branch, *Directory of Title VIII Area Vocational Education Schools and Programs, 1961.* Washington: U.S. Department of Health, Education, and Welfare, 1962 (mimeo).

priate distribution has been achieved in light of the needs of all the technical fields.

Enrollments in nonengineering preparatory curriculums in public and private institutions of higher education, including junior colleges, are shown in the tabulation below.[17] Some of these programs are aided by Federal funds; most of them are not. Worthy of note is the large number of programs in the field of business and commerce, and the relatively high enrollment in health service programs.

Curriculum	*Number of institutions*	*Enrollment full time*
TOTAL	--------	64,643
Agriculture and forestry	--------	4,095
Agriculture, general	77	1,857
Agriculture, industrial	7	303
Animal and poultry husbandry	19	725
Dairy technology	16	207
Floriculture and horticulture	21	440
Forestry	16	435
Landscape architecture	3	128
Applied and graphic arts	--------	4,474
Commercial art and advertising	54	1,543
Fashion design	16	630
Graphic arts	20	587
Interior decorating	15	161
Jewelry design	1	6
Music	35	342
Other fine and applied arts	31	485
Photography	15	215
Publishing and printing management	6	347
Publishing and printing technology	16	158
Business and commerce	--------	42,923
Accounting	164	6,007
Business, general	272	12,961
Cosmetology	15	515
Executive assistant	9	164
Hotel management	6	340
Journalism	17	163
Radio and TV program production	18	319
Real estate and insurance	21	599
Retail sales and merchandising	82	2,236

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[17] K. A. Brunner and D. G. Morrison, *Organized Occupational Curriculums in Higher Education, Enrollments and Graduates, 1958.* Washington: U.S. Department of Health, Education, and Welfare, 1959.

Curriculum	Number of institutions	Enrollment full time
Business and commerce—Continued		
Secretarial:		
General	445	16, 436
Legal	19	501
Medical and dental	86	2, 204
Technical	9	377
Technical office assistant	2	19
Transportation and office management	17	82
Health service		9, 993
Dental hygiene	34	1, 903
Dental laboratory technology	8	292
Food inspection technology	1	34
Medical office assistant	14	575
Medical and biological laboratory work	66	1, 024
Nursing:		
2-year programs	39	1, 674
3-year programs	43	4, 079
Practical	2	92
Sanitation	2	16
X-ray technology	22	304
Home economics		2, 055
Home economics or homemaking	83	1, 359
Clothing and textiles	16	174
Food administration	15	457
Nutrition technology	3	65
Miscellaneous		1, 103
Fire protection technology	3	18
Library work	6	26
Mortuary science	5	201
Police methods technology	24	856
Safety technology	1	2

The curriculum offerings available in trade and industrial education in public schools in the several States vary widely, from 334 in California to none in 7 States. In some States, the out-of-school youth or adult who desires such training apparently can find it only in apprenticeship, plant training programs, private schools, correctional institutions, or the rehabilitation service. In certain States, such as Kentucky, Connecticut, North Carolina, and Wisconsin, area vocational schools provide most of the offerings for adults. Other States, such as California, rely on the junior college. Some utilize the extended program of the high school.

In jurisdictions making an intensive effort to industrialize a largely agricultural economy—as in North Carolina, Georgia, and Puerto Rico—most of the new programs are being developed in area schools. Relatively few preparatory programs in trade and industrial education for adults are found in comprehensive high schools.

Great gaps appear in the geographical distribution of curriculum offerings for adults. Relatively few opportunities are provided for persons in rural communities to get training that will prepare them for jobs in urban areas. Young people who have to leave home to get needed training face the important problem of providing for their subsistence while in full-time training programs, and relatively little seems to be done to alleviate this problem. Although many young women are enrolled in vocational education programs beyond the high school, the number is small in comparison with potential employment opportunities.

The needs of employers for trained personnel are met by preemployment programs which prepare new workers, and programs to upgrade those already employed. Automation and other technological changes are eliminating needs for semiskilled workers and are generating employment opportunities for persons with high technical qualifications. Many of these persons will have to be trained in preemployment programs. The gap between employment opportunities and available training facilities appears in nearly every occupational field.

The needs of industry are far beyond the capacity of present programs which provide training for the skilled crafts and other industrial occupations. Automation is creating new demands for technicians, but it also is increasing the need for skilled workers to make and maintain the automated machines. The need for skilled workers also continues to grow in fields such as construction and service occupations, where automation has not yet entered to the same extent as in manufacturing. Apprenticeship, if stepped up, will help to lessen the gap. But apprenticeship is not enough, and much more needs to be done in expanding the training programs in trade and industrial education beyond the high school.

Perhaps the most rapidly expanding field is that of technical occupations, especially in industry. Estimates of needs for technicians at the present ratio of 0.7 to 1 of engineers to scientists indicate some 70,000 new technicians required annually. If the ratio of technicians to engineers is increased to 2 to 1, as many feel is necessary, the needs jump to some 200,000 persons per year. Probably not more than 60,000 persons are presently enrolled in full-time training programs for engineering technicians. If these projected needs are to be met, some 390,000 enrolled students will be needed in such programs.

The field of health occupations, including practical nursing, is far short in the number of new workers provided annually. Expansion of this occupational field is constant, and many new and expanding training programs will be required in these occupations, for which training is best provided in vocational programs beyond the high school.

Expansion of office occupations by 1970 is estimated at more than 25 percent over present figures, and jobs in the field of distribution and marketing are increasing in number and in the level of competency required. A rapid increase in training programs in these fields at the postsecondary level will be necessary to meet the needs.

If the economy is to expand, trained personnel are needed. Public vocational education programs beyond the high school can contribute much, if adequate funds are available from the Federal Government to supplement funds now provided by the States and the local communities.

Organization and Development of Programs

The types of administrative patterns utilized in the various States for vocational and technical education programs beyond the high school tend to follow the patterns for general education. California uses its system of junior colleges. Connecticut adds a 13th and 14th year to some of its area schools, and for technician training establishes technical institutes. The program under development in North Carolina utilizes newly established area schools known as industrial education centers. Georgia is following a similar pattern. Florida utilizes many of its junior colleges.

The development of national concern for technical education has been handicapped by the "less than college grade" provision in the Federal acts that provide financial aid. Institutions that consider themselves in the field of higher education, such as most junior colleges, in some States are under a State board for higher education. They logically look toward the Division of Higher Education in the U.S. Office of Education for counsel and guidance, and make their national reports to that Division. If these junior colleges accept the aid available under title VIII, and 176 of them did so in 1960–61, they also make their reports to, and look for aid from, the State board for vocational education, and through those boards to the Division of Vocational and Technical Education of the U.S. Office of Education. One branch of the Division of Vocational and Technical Education deals with the State boards concerning trade and industrial education; another branch handles the problems of technical education. Within some States, the official in charge of the trade and industrial programs is also responsible for the technical programs.

The lack of unity has handicapped the development of the overall program. Statistical data gathered by different agencies overlap, and it is almost impossible to get a true picture of programs and enrollments in institutions which make one report to one agency and a different report to another. In the field of technician training, when the Federal aid program under title VIII of the National Defense Education Act was incorporated into the George-Barden Act and hence assigned to the Division of Vocational and Technical Education in the Office of Education, many persons felt that a mistake had been made, that suitable standards would not be maintained, and that the program should have been placed in the Division of Higher Education of the Office of Education. Events have proved that the program can be administered effectively by the Division of Vocational and Technical Education, but the task would have been easier if unity of purpose had prevailed among those concerned with the problem. The scope and size of the education needs for technicians are so great that unified effort is needed.

Curriculum planning in postsecondary vocational and technical education programs has received considerable attention within the States and in the Office of Education, especially with respect to technical education. The Office of Education has contracted with various universities for the development of specific curriculums for technician training. These curriculums have been checked by selected panels of representatives from technical schools, universities, and industry and made available to the States as suggested patterns. Several of the States have also performed similar work in this field.

New buildings have been added for postsecondary programs, or for combinations with high school programs, during recent years. Connecticut, North Carolina, Georgia, and several other States have put substantial sums into new physical facilities. Many of the new buildings are attractive as well as functional and lend status to the programs. Equipment funds which were made available under title VIII helped greatly in securing the instruments and tools needed. Good use has been made of surplus Government equipment. Statewide planning, based upon surveys of occupational and student potential, has been conducted in some States.

The major objective of all vocational education programs is the effective placement of graduates at salaries commensurate with their abilities. The attainment of this goal is perhaps easier in the postsecondary preemployment program than it is in the high school.

Selectivity of students is more exacting, curriculums are geared more directly to the needs of employers, the education is usually more intensive, and retention of students until graduation is relatively high.

As indicated earlier, placement of graduates in title VIII programs operated on the postsecondary level in 1961, in fields of training or related fields, amounted to approximately 70 percent of the graduating classes. In secondary school technical programs the placement was approximately 50 percent. A much higher proportion of the graduates of the high school programs continued their education than was the case with those in postsecondary programs. The starting salaries of the postsecondary school graduates were somewhat higher than those from the high school programs.

Efficiency of Operation

The postsecondary preemployment program can set more rigid entrance requirements for students than can the high school programs. This results in more uniform student groups and more effective instruction. Many of these schools use the test results obtained through cooperation with public employment services in their student selection. Classes are held to reasonable sizes. In some cases, high school and post-high-school students are found in the same class, but this is not common. Student motivation is usually high; the students have definite occupational goals and work hard to attain them.

In specialized vocational and technical schools on the postsecondary level, the overall enrollment is usually sufficiently large to provide satisfactory enrollments in the various curriculums, although in the early stages of program development in a school, classes are frequently small. Once a program is well underway, optimum class sizes are the rule, and the overall load factor of equipment usage is high.

Some shortcomings exist in the relationship between vocational and technical education programs and guidance personnel in feeder schools, and efforts must be made to keep guidance counselors in the high schools fully informed about the program offerings of the postsecondary vocational training institutions.

Cooperation with industry through the use of advisory committees is generally satisfactory, and in some cases special programs are devised to provide trained persons for new industries entering a community. Employers, in turn, cooperate by loaning technical staff for part-time teaching.

Teachers of technical and other subjects have frequently been in short supply; and better training is needed for the teachers in these programs. Utilization of some of the newer teaching procedures, such as closed-circuit television and programed learning, may help alleviate the teacher shortage. Some steps are being made in this direction, but much needs to be done.

Prestige of Programs

Prestige is an important factor in all vocational education programs, for, traditionally, they have been looked down upon by many academic educators and the public. The postsecondary vocational or technical school has distinct advantages over the high school vocational programs in this respect. The title of the school, the attractiveness and functional working of the school plant, the maturity and quality of the students, the placement record, the quality of the equipment and of the library facilities, the labor standards observed in the programs, the quality of the staff, and many other factors affect the prestige of the school. Accreditation is an important item. A technical program with accreditation by the Engineers Council for Professional Development ranks high among those who know the meaning of such accreditation. Some States are establishing their own accreditation standards. Many schools, especially junior colleges, are accredited by their regional associations.

Offering certain types of credentials for graduates, such as the associate in arts degree, helps in raising the prestige of the school. Mature persons like to be associated with an institution that ranks high in the eyes of the community and the State, and recruitment of students is facilitated by high prestige.

Preparedness To Meet Changing Conditions

Vocational and technical education programs on the postsecondary level are in a better position to meet changing conditions than are programs in the high schools. A previous section of this report discussed the role of the vocational schools in national emergencies in the past. How well are those on the postsecondary level prepared to meet changing conditions and emergency needs?

These schools are now facing a test in the expansion needed under the Area Redevelopment Act and the Manpower Development and Training Act. In many respects, they are equipped to meet the changes. Many new plants have been built and equipment purchased. Instructional materials laboratories have some facilities for the development of new curriculums and new instructional materials, though much more is needed in this field. Some of the schools have had experience in developing special programs for new industries coming into their communities. Relationships with other agencies, such as the public employment service, have been developed in many schools. School directors have faced many new problems in dealing with changed programs to keep up with changing needs.

The newness of many of the postsecondary programs is an asset in regard to meeting changing needs. Programs of long standing tend to become static, and lend themselves to change less readily than those which are relatively new. Much of the readiness for change lies in the hands of the leadership in the programs at Federal, State, and local levels. These leaders generally respond to changing conditions readily, once the changing needs are clearly set forth and funds provided to undertake new programs.

Out-of-School Youth and Adults

Education for occupational competency is a lifelong process that starts when one acquires his first basic skills and concepts and ends when he quits his last job. Much of the competency for occupational life is acquired outside the formal educational program, but for many individuals there is need for organized vocational education at successive stages. The need for new skills is especially great in an economy which is undergoing rapid technological change, as at present. Educating persons in the labor market—youth and adults—to help them meet changes in their present jobs or prepare for new jobs is thus an important phase of the total program of vocational education.

Great diversity of content and pattern is found in the many program offerings for employed youth and adults. They cut across all occupational fields. They include short intensive courses for upgrading workers in their present jobs and comprehensive curriculums pursued by workers who are willing to attend school in the evenings for several years to prepare themselves for advanced jobs. Or they may take the form of short, intensive, full-time programs for disemployed workers, preparing them for jobs that are available in fields that may be quite different from their previous employment. Included also are a few general continuation programs for young workers.

The programs serve a wide age range of workers, from the young continuation student to the worker 60 years of age or beyond. Some of these programs provide for skill development through actual practice. Most of them are of the classroom and laboratory type where the objective is new knowledge, understanding, and skill.

Courses are given in the evening, during the working day, or in out-of-work hours to accommodate a variety of workers. They may be developed by popular demand or in response to needs revealed by surveys of the occupational fields. Classes are usually held in institutions which also provide full-time vocational education programs, utilizing the shops, laboratories, classrooms, and instructional equipment of the school. Sometimes they are held outside the schools, where appropriate facilities are available and where it is convenient for the students to assemble.

Programs of vocational education for employed youth and adults provided approximately 53 percent of the total enrollment in federally aided classes during the year 1960–61. All the occupational categories of vocational education have provided such programs; enrollment for the year 1960–61 was as follows: [18]

Occupational category	*Enrollment*
TOTAL	2,002,156
Trade and industrial education	656,265
Home economics education	629,225
Agricultural education	342,566
Distributive education	262,904
Area technical education	83,728
Practical nursing and health occupations	25,170
Fishery training	2,298

In addition to the above enrollment in federally aided classes, many thousands of workers attended evening and other part-time classes offered by private schools, industrial establishments, unions, and other agencies; took evening business courses which were not federally subsidized; or enrolled in correspondence courses. Taken all in all, part-time and evening study by employed youth and adults in the United States is making a great contribution to the occupational competency of the Nation. The importance of this contribution is not fully realized by many educators.

Evening and other part-time courses add much to the effectiveness and efficiency of the total program of vocational education, for they can be designed to meet the specific needs of employers and workers, and they can be developed rapidly to meet changing needs and discontinued readily when the needs have been met. Capable instructors can usually be recruited from the occupations. Many such courses have available to them the facilities and equipment of industrial plants which are beyond the means of public or private schools. The overall use of plant and equipment is increased by part-time classes meeting at hours when the full-time program is not in operation. The part-time programs often deal with new developments in the occupational fields and tend to keep the day school programs abreast of changing conditions.

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[18] *Digest of Annual Reports*, 1961. See also ch. 3.

In trade and industrial education the program for employed youth and adults has covered a wide range of courses. Although some courses have dealt with skill development, most of the program has been made up of courses in technology, related science, mathematics, and drawing. In many of the States the program has included classes for police officers, cosmetologists, cooks, firemen, and supervisors in industrial establishments. In some cases, these courses have been provided directly by the staff of the State board for vocational education, using itinerant instructors.

Provisions of the Smith-Hughes and George-Barden Acts require that enrollment in evening classes be restricted to persons for whom the instruction is supplementary to their daily employment. This restriction makes it impossible to enroll persons who wish to prepare for a new field of work. It tends to safeguard labor standards, but it works to the disadvantage of the person who finds himself in the wrong occupation or who finds his present job precarious due to automation or other change. In contrast, title VIII of the National Defense Education Act permits enrollment of persons in technician training programs in evening schools, irrespective of present jobs.

Apprenticeship

Apprenticeship, one of the oldest training techniques, produces skilled workers of excellent quality. It is a unique method which combines classroom instruction and on-the-job application of the principles learned. Courses are taught by skilled journeymen. Those involved in the training of apprentices include at least the apprentice, an employer, and a journeyman to give on-the-job instruction. When a collective-bargaining relationship exists, the union is an equal participant with management in the apprenticeship program. With the advent of Government participation in vocational education (Smith-Hughes Act), and later in promotion of apprenticeship (Fitzgerald Act),[19] classes for related information, supplemental to daily employment of the apprentice, have been required.

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[19] Public Law 308, 73d Cong., Aug. 16, 1937.

Vocational education has the prime responsibility for developing and conducting related instruction for apprentices. The best source of direct information on the requirements of the industry is a joint apprenticeship committee which operates the program and which represents labor and management. This committee also has responsibility for selecting, training on the job, and evaluating the student's achievement during the period of apprenticeship.

In recent years there has been a growing movement by industry to remove related classroom instruction for apprentices from the public vocational educational institutions and to establish it in private facilities supported jointly by labor and management in the industry. It is, therefore, of utmost importance that a careful evaluation be made of the existing deficiencies and of the action necessary in order to return these programs to the public vocational educational facilities.

Apprenticeship is an employment relationship which provides for systematic training and progressive advancement in accordance with a prescribed set of standards. The entrance requirements for apprenticeship vary with the requirements of the industry. Many industries require high school graduation, or its equivalent, and some specify that certain subjects must have been studied. An increasing number are utilizing aptitude and other tests, frequently with the assistance of public schools and employment services.

Some thoughtful consideration is presently being given to preapprenticeship programs which may be established in conjunction with existing apprenticeship programs. If any such preapprenticeship program is established, it must observe the entrance requirements of, and be geared to, the apprenticeship program with which it is related.

In light of present and predictable future requirements, there is need for a review of current related instruction with respect to course content and method of presentation. This review can best be accomplished in close cooperation with the joint apprenticeship committee, for industry is aware of the need for change and such an appraisal will indicate how to update the skills of journeymen who served their apprenticeship prior to the many recent innovations in their fields.

There are those who have severely criticized various aspects of apprenticeship. Many critics obviously fail to realize that apprenticeship is an employment status requiring a substantial investment both of money and effort in the development of a craftsman. The related classroom instruction is an integral part of the training of the apprentice and is developed in conjunction with the training he will receive on the job. Since industry pays for the apprenticeship, it necessarily utilizes as many as it can accommodate in its present and anticipated future activity. This must be kept in mind in considering some of the criticisms of apprenticeship.

Admittedly, there are not enough apprentices in training to meet the expected needs for craftsmen in the future; this must be made clear to the industry groups, management and labor, who will make the final determination. There are today still far too many employers and unions that fail to recognize their responsibility to develop new craftsmen through the apprenticeship system. Industry is not always willing to bear its share of the responsibility for training craftsmen through apprenticeship. The selection of apprentices is often discriminatory and does not permit everyone meeting the requirements to be given equal consideration for the necessarily limited number of openings. Selection of the apprentices from the qualified applicants must rest with the joint apprenticeship committees responsible for administering the program.

This discussion indicates some of the problems to be solved in apprenticeship which should be considered in the process of improving and redirecting vocational education.

Over the years, educators responsible for the public program of vocational education have been enthusiastic about the apprenticeship program. For the most part there has been excellent cooperation between the public schools and the employer and employee groups which represent the interests of management and labor. These relationships have succeeded in giving guidance and clarification to the school's primary function of providing related information for the apprenticeship program. If cooperative relationships and mutual understanding do not exist, the school can be placed in a precarious position, receive unwarranted criticism, and ultimately be made impotent in fostering educational opportunity as it should.

Part-Time and Evening Instruction

In *technical education*, part-time and evening instruction for employed youths and adults plays an important role. Many present technicians rose to their current positions through part-time instruction. The rapid changes in technology in the past decade have affected the work of the technician perhaps more than that of most other occupations. To keep abreast of new developments requires continual study, much of which can be done best in well-developed evening and part-time programs.

In the year 1960–61, the enrollment of employed youth and adults in extension courses under title VIII of the National Defense Education Act numbered 83,728, or more than twice as many as were enrolled in preemployment programs.[20] The rapid growth which was stimulated by Federal funds available under the act is indicated by an increase of some 23 percent in enrollment in extension courses in 1960–61 over that for the previous year.

The wide range of extension courses offered in title VIII programs is shown in the following list for 1960–61.

Titles of Extension Courses Offered in Title VIII Programs in High Schools and Post-High-School Institutions, 1960–61 [1]

Aeronautical technology
Aircraft sheetmetal
Automation
Basic fabrication
Building and construction
Business data processing
Chemical analysis
Civil technology
Cryogenics
Corrosion mitigation
Electrical power
Electrical technology
Electronic communication
Electronics technology
Electroplating
Engineering mathematics
Geology
Highway engineering
Hydraulics
Industrial organization
Instrumentation
Machine design
Manufacturing analysis
Materials and processes
Mathematics for radiomen
Mechanical technology
Metallography
Metallurgy
Metal processing and fabrication
Microwave surveying
Nuclear and health physics
Nucleonics
Optics
Petroleum processing
Plastics
Pneumatic controls
Production planning and control
Qualitative analysis
Quality control
Radar
Science for technicians
Scientific glassblowing
Servomechanisms
Sound amplification
Space technology
Statics and dynamics
Strength of materials
Stress analysis
Structural drafting
Surveying
Technical illustration
Technical mathematics
Technical physics
Technical supervision
Time study
Tool design
Toolmaking
Transistors
X-ray technology

[1] Office of Education, *Directory of Title VIII Area Vocational Education Schools and Programs, 1961.* Washington: U.S. Department of Health, Education, and Welfare, 1962 (Mimeo).

In *agricultural education*, the vocational program for employed youth and adults usually takes the form of organized classes meeting at least 10 times per year, with groups organized for adult farmers and for young farmers. Courses for adult farmers deal primarily with increasing the efficiency of an established farm business through study of the marketing of farm products or methods of improving the quality and quantity of farm products. Courses for young farmers deal primarily with problems of getting started in farming, such as selecting a farm for rent or purchase, or drawing up partnership agreements. An enrollment of more than 300,000 in these classes was reported in 1960–61.[21]

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[20] *Digest of Annual Reports*, 1961, op. cit.

With the increasing need of manpower engaged in nonfarm agricultural activities, a field not now covered by the Federal vocational education acts, attention is being given to training in farm-related occupations. This field should be an important part of the total program in the years ahead.

The stated purpose of vocational education programs for adults in the field of *home economics* is to help homemakers improve the quality of their family life through better use of human and material resources. The programs are open to any adult man or woman who has responsibility for homemaking or family living. The classes are taught by home economics teachers certified to teach in the State or by skilled workers from occupations closely related to homemaking. Nearly 630,000 enrollments in home economics extension courses were reported for 1960–61.[21]

Programs for adults in the field of *distributive education* are designed to give technical instruction and skill training to supplement the job experience of the worker. The students are adults employed as distributive workers, including managers, department heads, and supervisors. The programs vary in length from short intensive courses to curriculums extending over 3 years, with students attending 4 hours per week. Classes are taught by instructors who have vocational competence in the occupation taught and who are drawn largely from business organizations. The training of the teachers and the development of appropriate instructional materials are tasks that may well receive increased attention. Employment in the distribution field is widening in scope and increasing in number. Some 260,000 enrollments were reported for the year 1960–61 in distributive education classes.[21]

Extension courses in *practical nurse education* are designed to give instruction in new techniques to those who are registered practical nurses and to give instruction needed by nonlicensed practical nurses to qualify for licensure. Courses are taught by registered professional nurses who have had training for teaching. Accordingly, the courses offered have included instruction in such areas as the administration of medications, postoperative nursing care, geriatric nursing, and the like. Enrollments in extension courses in practical nursing and other health occupations numbered more than 18,000 in 1960–61.[21]

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[21] *Digest of Annual Reports, 1961, op cit.*

Office occupations training, except for employed youth between 14 and 18 years of age in the general continuation program or the diversified cooperative training program, is not included in federally supported vocational education, yet this is a field in which many thousands of employed youth and adults seek additional instruction through private schools and public programs which are supported by State and local funds. Employment within this field is rising, and new occupations are appearing which require specialized education on the technical level.

The *general continuation school program* provided for in the Smith-Hughes Act was designed to meet the needs of young workers over 14 and less than 18 years of age, most of whom were employed in jobs which offered limited oportunity for advancement. The course content included any subject which would enlarge the civic or vocational intelligence of such workers. The general continuation schools, which at one period enrolled some 350,000 students, more than half of the total enrollment in the trade and industrial field, now have decreased to the point where in the year 1960–61 they were operating in only 7 States, with an enrollment of 15,500.[21]

Summary

Conclusions

- Wide variations exist among the States, and among the schools in the States, in the vocational curriculums offered for high school students.
- The scope of the typical high school program is narrow in relation to needs of the present day:
  - (*a*) Rural schools have given little attention to the occupation needs of students who migrate to urban centers.
  - (*b*) Large high schools do not offer vocational programs in relation to probable need; only one-fifth of the students attend a school where trade and industrial education is offered, and only one-tenth attend a school where distributive education is offered.
- The States have developed their own administrative patterns for vocational education; programs are found in many different kinds of secondary schools.
- Efficiency of operation depends to a large extent upon teacher education, student selection, and class or shop organization. Planning for plant and equipment is very important in vocational education.
- Many young people in high school need special occupational instruction if they have not been able to adjust to the regular school program and lack interest and motivation.

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[21] *Digest of Annual Reports, 1961, op. cit.*

- A large proportion of the high school dropouts are representative of youth with special needs. Those who leave school early are usually unprepared to enter the labor market, where entry-level proficiency is demanded. Consequently, school dropouts comprise a large proportion of the unemployed.

- Some cities have recognized the special problems of youth and are aware of the necessity of new educational programs.

- Vocational and technical education programs for post-high-school youth and adults have developed rapidly in recent years to meet diverse vocational needs. Curriculum patterns provide an opportunity for students to concentrate upon vocational content and enter the world of work more rapidly.

- Selection of students, enrollment, and cooperation with business and industry and placement of graduates have been satisfactory in post-high-school programs.

- The "area" vocational school concept appears to have many advantages as a post-high-school institution.

- Effective administration of vocational and technical education at the Federal level has been achieved by the Division of Vocational and Technical Education of the U.S. Office of Education.

- Education for vocational competency may require that the workers of the future accept lifelong learning as a normal part of their occupational life.

- More than 2 million persons were enrolled in part-time study, during 1960–61, for the purpose of updating and upgrading themselves in their vocations.

Limitations

- Programs for high school youth are limited in scope and availability. About half the high schools offering trade and industrial education have four or fewer programs, and these are closely related to single occupations. The problem of availability is in part a function of the size of the school; it is even more a function of the commitment of the school to occupational preparation as an element of the instructional program.

- High schools have failed to provide basic training programs for groups of occupations. Limiting instruction to single occupations reduces the scope of a school's program. Federal aid has not generally been available to support the development of instruction for groups or clusters of occupations.

- Long-term planning at the State and local levels must be improved. Although many excellent examples of planning can be cited, major problems exist in the rural schools and in the high schools of the large cities. Statewide coordination involving all groups concerned with the total program of training and employment is imperative.

- Research and study of operational efficiency have been neglected. Raising instructional effectiveness depends in large measure on research in operational efficiency, the implementation of research findings, and better utilization of instructional devices such as programed learning.

- High school programs must be improved to meet the needs of emergency conditions. Programs must be restructured or expanded to reflect employment needs of the economy. Such programs must be kept up to date in terms of changing occupational conditions.

Youth With Special Needs

- Adequate provision has not been made in the Nation's vocational education program for youth with special needs. In many respects vocational education has been as selective as has academic education with reference to accepting students.

- Aside from the provisions of the continuation program which for a time contributed to the educational development of these young people, the vocational program is not prepared to meet their needs. This does not mean that vocational education has not recognized the need or that the public schools have not provided services for these young people. The fact does remain, however, that the dimensions of the problem have so expanded that new and appropriate attention is demanded. With respect to this problem, the Panel makes specific recommendations in part III of this report.

- The value and potential contribution of these young people to their own welfare and to that of society, and the national economy and security should be recognized and respected.

Adult Programs

- Extreme variation in curriculum offerings indicates that, in many States, post-high-school youth and adults do not have an opportunity for vocational instruction. In part, this situation may be due to the lack of leadership from the Federal program to stimulate such preemployment programs.

- Curriculum offerings tend to be concentrated in the "popular" technologies. More than 40 percent of the curriculum offerings are to be found in electronics. It is obvious that other technologies have not had appropriate development in post-high-school instruction.

- Insufficient funds and restrictive provisions in present Federal legislation have inhibited development of certain types of programs. For example, programs of training for office occupations have rarely been eligible for Federal assistance.

- In nearly every occupational field, employment opportunities exceed the availability of post-high-school preemployment instruction. Instructional needs for trained manpower exceed the total capacity of the present public school program to provide for these manpower needs.

- Much evidence is available to indicate that more people will spend more time in continuing their education in relation to specific job requirements. Yet the program of continuing education is neither sufficiently broad nor extensive to meet this need.

- The public school program for out-of-school youth and adults includes a wide range of subject matter, but the range must be vastly expanded in the future.

- Many workers who desire occupational training have not been able to obtain it because of inaccessibility of appropriate programs.

- Many educators in positions of leadership have failed to recognize the importance of vocational education for employed persons and have not promoted its development. Lack of initiative and imagination in exploring new occupational fields has tended to restrict program offerings to those which have been commonly provided in the past.

- Related training for apprentices at school has had severe limitations:

  a. Adequate classroom space and appropriate instructional equipment and materials have not been available for many types of courses. These inadequacies have caused some programs to be removed from the public schools.

  b. Craftsmen used as teachers for related training and skill training of both apprentices and journeymen have not been afforded adequate opportunities to learn modern instructional methods.

CHAPTER 8

Areas of Service

THE AREAS OF SERVICE to vocational education consist of (*a*) administration, supervision, and financing; (*b*) teacher education; (*c*) curriculum development and instructional materials; (*d*) occupational information and vocational guidance; and (*e*) research. These areas of service extend across all the occupational categories, including a complex of activities and relationships, which in sum comprise the vocational education program. Each of the services is vital to the success of the vocational education program because of the impact of each upon teaching and learning. No order or assignment of importance is intended in the following appraisal of the areas of service.

Despite recognition of the importance of leadership by vocational education personnel at all levels, it is treated as a special concern in the section devoted to the area of service of administration and supervision. Notwithstanding the caliber of leadership which has directed the program in the past, the challenge of the future will demand leadership of great vision and vigor.

The vocational education program and its impact upon people will continue to be as good as its teachers. The service of teacher education has its function in the learning process and the insightful changing of behavior as teachers understand their students and their occupational needs in the dynamic world of work.

The vocational curriculum recognizes both fundamental and advanced learning. Moreover, vocational curriculums must develop and be adaptive to progress and change as they occur in the occupational world. A host of instructional aids and learning devices, particularly instructional materials, must keep pace.

The adequacy of conveying occupational information and providing vocational guidance to people in the vocational program will be discussed in this chapter.

Finally, questions are raised about current efforts to solve the many persistent problems of vocational education through organized, systematic research. Advancements in knowledge, new breakthroughs in science, changes in technology, new insights into teaching and learning, the changing nature of the economy, and the sociology of occupations are setting a challenging pace for research to discover their implications for modern education programs.

Administration, Supervision, and Finance

Administration is made necessary by legislation at the State and Federal levels, and by school board policy, rules, and regulations at the local level. In addition to these mandated administrative activities, there are responsibilities for coordination, for supervision, and for the business management activities of providing supplies, equipment, facilities, and financing.

Training for Leadership

The leadership of vocational education will determine both its quality and effectiveness. In a rapidly changing world this leadership must be dynamic and forward looking, able to adapt its thinking to the constantly changing situation which it faces. Capable leadership is always in short supply, especially in the newer fields.

Persons occupying positions of leadership should have had teaching experience in vocational education in addition to appropriate professional education for the job. This training is usually acquired through graduate study. Requirements for some of the leadership positions can be met by attainment of the master's degree; other positions require the doctorate. Many persons in vocational education continue with graduate studies after they have had several years of teaching experience. Much of the graduate study is completed through summer sessions and by other part-time arrangements.

Proposed expansion of vocational education programs intensifies the need for leadership development. Special attention should be given to the development of highly qualified professional personnel in the many facets of vocational education. The task is large and will require measures considerably beyond the facilities now provided. Professional staffs at universities that provide leadership training will have to be enlarged. Recruitment of candidates for leadership training will have to be expanded and incentives provided in the form of fellowships or other stipends to make it possible for acceptable candidates to undertake the training needed. Inservice opportunities for leadership growth should be made available.

The Local School District

The most common pattern of administration at the operating school level is that of administration by a local school district. There are, however, many schools operated directly by the State education agency.

The school board has administrative responsibility at the local level. It delegates authority to an executive officer, normally the local superintendent of schools. In a small school system, the superintendent employs the vocational teachers, with the approval of the school board. The superintendent then may personally perform the administrative duties, provide the supervision, make the evaluations, and care for the business management functions. This is the situation in many small school districts where there may be only a few vocational teachers. It is probably the only practical arrangement in small schools.

It may be that the superintendent has had no training or experience with vocational education programs and thus has little interest or understanding of the activities or purposes of vocational courses. Vocational education often suffers under these circumstances, although the State may provide assistance to the superintendent. Many very satisfactory vocational classes exist in small school districts. However, small school districts at best cannot provide a variety of vocational training opportunities.

Financing is often deficient in small school districts because of the lack of taxable resources and the relatively greater costs for a small number of students.

The larger school districts in cities or urban centers usually have greater resources and can lower their per capita costs in providing for a larger number of students. This often makes it possible to provide a greater variety of vocational choices. It also often justifies creating the position of assistant to the superintendent, who is delegated responsibility to administer, supervise, coordinate, evaluate, and perform business management functions for vocational education classes. If this person is a capable vocational educator who has the ability to perform these leadership functions and who also has the confidence of the superintendent and the school board, the possibility of good vocational education service to the community is greatly enhanced. It is quite important that there be a local person, well trained, experienced, and with the confidence of the community if the best services are to be developed.

Vocational education is a specialized service of education; if its purpose is not understood by teachers, parents, or school officials, the task of the local director or supervisor of vocational education is difficult.

The State Organization

The responsibility for the administration of vocational education in each State rests in the State board for vocational education. The executive officer of this board, in all except four States, is also the chief State school officer, who administers the State laws and regulations for all public secondary and elementary schools, including vocational education.

Each State has a staff of specialists in vocational education, headed by a director. In a few States the chief State school officer serves as director. In four States the director reports directly to the State board and, instead of the chief State school officer, serves as its executive officer. The State staff in vocational education provides supervisory and consultative services to local school districts.

Each State provides some financing for vocational education. This ranges from only nominal funds to provide a minimum staff at the State level to large amounts of money to provide for extensive services at the State level and to assist vocational programs in the local school districts. There are extreme differences in financing among States. Naturally, more courses are offered, and consequently vocational education is much more available to youth and adults, in States that provide greater financing. Also, the quality of leadership and quality of instruction is likely to be better.

Federal-State Relationships

Federal legislation for vocational education has been enacted to promote, and to assist the States to operate, vocational education programs. The legislative acts make two major administrative requirements of States: (*a*) To designate a State board for vocational education to receive Federal vocational education funds and to administer their expenditure within the State; and (*b*) to submit to the Federal Government a document outlining the State's plans for using these funds. This State plan then becomes the contractual arrangement between the State and the Federal Government for the use of the Federal funds provided to a State. The Federal Government must accept any plan which a State submits if it conforms to the requirements of the Federal legislative acts.

The State plan was unique with enactment of the Smith-Hughes Act to assist States in providing vocational education services. It has been followed in subsequent vocational education legislation and has been used in other types of Federal legislation. It enables States to use these funds in a manner designated by the Federal legislation but under conditions to meet their varying needs. In general, it has been been a highly satisfactory method of outlining the Federal-State relationship. The State plan has achieved its maximum effectiveness in cases where the following conditions apply:

1. All the agencies within the State that are closely allied in vocational programs are involved in the development of the State plan.
2. The State plan is reviewed regularly and revised to bring it up to date to meet newer needs.

Despite the fact that one of the basic principles of the State plan is to provide for great flexibility, there have been cases where vocational education in a State has been a slave to an outmoded plan. When the State plan prevents maximum effectiveness of the vocational program within a State, the fault is with the State educational leadership.

Federal Administration

The administrative structure of vocational education at the Federal level has changed from an independent Federal agency created by Congress in 1917 to a subordinate division of one of the smaller agencies of the Department of Health, Education, and Welfare in 1962, as shown by organization charts in chapter 4 of this report.

The duties and responsibilities of the Federal agency for vocational education are as follows:

1. Administering the provisions of Federal legislative acts and the resulting regulations.
2. Allotting, auditing, and advising regarding the use of Federal funds.
3. Providing leadership, promotion, supervision, and assistance in program development for vocational education.
4. Collecting, compiling, and distributing statistical data regarding the financing, operation, and evaluation of programs.
5. Liaison activities with other Federal agencies and public and private organizations that have interests and responsibilities for vocational education.

These activities are now performed by the Division of Vocational and Technical Education, under the direction of an Assistant Commissioner in the U.S. Office of Education. This Assistant Commissioner does not report directly to the Commissioner of Education and is not a member of the Administrative Staff Committee of the U.S. Office of Education.

The Division of Vocational and Technical Education was the smallest division of the U.S. Office of Education listed in a report of the U.S. Senate Committee on Government Operations of 1962.[1]

U.S. Office of Education	*Number of staff members*
TOTAL	1,160
Division of State and Local School Systems	242
Division of Higher Education	174
Office of the Commissioner	172
Division of Statistics and Research Services	167
Division of International Education	131
Field personnel	100
Division of School Assistance in Federally Affected Areas	88
Division of Vocational and Technical Education	86
Other Federal Offices	
Office of Vocational Rehabilitation	224
Bureau of Apprenticeship and Training (Department of Labor)	519
National Science Foundation	1,154

Such comparisons are not simple, direct analogies but would seem to indicate that vocational education is not considered highly important at the Federal level.

The financing of the vocational activities at the national level shows another trend toward diminishing the relative importance of vocational education in the U.S. Office of Education.

Office of Education budget for fiscal year [1]	*Appropriated for salaries and expenses*	*Earmarked for vocational education division, and percent of total*
1950	$2,025,000	$531,914 (26%)
1955	2,924,800	463,069 (16%)
1962	11,594,000	873,035 (8%)

[1] Reported in Budget of the U.S. Government, fiscal year 1952, p. 196; 1957, p. 671; 1963, p. 380 (estimate).

The vocational and technical education activities of the U.S. Office of Education require capable persons working at an administrative level to permit decisionmaking and liaison contacts commensurate with the importance of the tasks involved. These decisions and the liaison contacts will become more important in the years ahead as vocational and technical education expands and more people are served. Vocational education must be represented in the highest policymaking councils of the U.S. Office of Education and must have a staff of sufficient size and caliber to provide the services appropriate to this national office.

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[1] *Organization of Federal Executive Departments and Agencies*, U.S. Senate Committee on Government Operations, chart to accompany committee report No. 22, Jan. 1, 1962.

Financing Vocational Education

The amount of Federal funds directed toward certain other activities seems also to indicate that vocational education is not given the consideration commensurate with its importance to the national economy and welfare.

Federal expenditures, fiscal year 1960–61 [1]	*Millions of dollars*
Vocational education	$49
Assistance to schools in federally impacted areas	267
Cooperative extension work	63
Federal assistance to special milk program	84
Federal assistance to school lunch program (funds and commodities)	226
Vocational rehabilitation	55

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[1] Agricultural Marketing Service, *Selected Statistics on Operation of Food Distribution Programs, Fiscal Year 1961,* Washington: U.S. Department of Agriculture, 1962, p. 1; and *Health, Education, and Welfare Trends—1962,* Washington: U.S. Department of Health, Education, and Welfare, 1962, pp. 99 and 111. Also, *Digests of Annual Reports.*

At the State and local level a growing concern for vocational education has been indicated by greater financial effort; the increase at the local and State level is significantly larger than the increase of financial effort at the Federal level, as shown by these figures:

Funds for Vocational Education
[In millions]

Year:	*Federal Government funds*	*State and local government fund*
1939–40	$20	$35
1959–60	45	193

This indicates that the Federal financing grew 125 percent during the 20-year period from 1940 to 1960, while the local and State government financing grew 452 percent.

These figures do not represent the total expenditure for vocational education by the local school districts and State governments. Local and State governments build all the buildings, furnish practically all the equipment and most of the operating supplies, and also provide most of the administration and overhead costs of the local school district operation. Further, the largest program of training for employment in the high schools of the Nation does not receive financial assistance from the Federal Government—the training for employment in office occupations. This program enrolls more high school students than all other vocational courses combined.

There is no way to determine just how much money is involved in the construction of buildings, the purchase of supplies and equipment, or the training for employment in office occupations. But it is probably more than twice the amount spent by the local school districts and State governments as their reported share of the federally supported vocational education programs. This could, therefore, amount to more than an annual $500 million each year not reported as vocational education expenditure.

Teacher Education

The education of teachers for vocational programs has been recognized as an important element by the various Federal acts supporting vocational education. Since each State has developed its teacher-education program in accordance with its needs and facilities, wide variations exist in these State patterns.

The training of agricultural and home economics teachers, and to a considerable extent of teachers of distributive education, generally has been accomplished through baccalaureate programs that combine a broad base of occupational content with appropriate professional education. The land-grant colleges have usually provided the training for agriculture and home economics teachers.

The training of teachers for trade and industrial education and for technical education has followed a somewhat different pattern. The requirement of extensive occupational experience, and the great diversity of fields for which training programs are offered, has necessitated the recruitment of persons with adequate occupational experience, who work as teachers with relatively little preemployment professional training. Inservice training is then provided as the teacher performs his teaching assignment. Relatively few trade and industrial education teachers have been trained through baccalaureate degree programs. Teachers of practical nursing have been recruited from the ranks of registered nurses and given the needed teacher training.

Variations Among Programs

The demand for teachers in the various fields of vocational education has usually been larger than the supply. Industry and business seek persons with similar qualifications, and are able to offer higher salaries than are available in the schools. This is especially true in occupational fields that are expanding rapidly.

Agricultural education programs are usually located in high schools, and provide broad basic instruction covering the wide range of agricultural activities of the community, supplemented by instruction in appropriate underlying sciences. The education program for agriculture teachers, offered in the agricultural colleges, provides the occupational content appropriate to the region, together with teaching methods and other professional education courses. Students preparing to teach vocational agriculture generally have lived on farms and have had experience in many farm activities. In the year 1960–61, there were 10,636 teaching positions in day programs of vocational agriculture, and 9,818 positions in adult and young-farmer programs.[2]

The changing patterns of needs for workers in agricultural occupations, declining overall needs for farmworkers, possible consolidation of present agricultural programs in small high schools into area school programs, and the development of training programs in agribusiness fields on the post-high-school level may well influence the nature of the teacher-training programs.

Home economics education programs are generally found in high schools, with some of these schools offering vocational home economics, some offering nonvocational home economics, and others combination programs. In 1960–61, there were 14,570 teaching positions in day programs of vocational home economics, and 12,459 positions in part-time and evening programs.[2] Large numbers of home economics teachers are also found in the nonvocational home economics programs. The education program for home economics teachers follows the same general pattern as that for agriculture teachers—a baccalaureate program with a broad range of subject matter and appropriate professional education courses.

Teacher certification for nonvocational home economics teachers in many States is identical with that for vocational teachers, as is the teacher education program. Some 300 collegiate institutions are approved by State boards for vocational education for conducting home economics teacher education; about 130 of them receive Federal reimbursement. Some consideration is being given in certain institutions to lengthening the program to 5 years, and to some specialization in curriculums to meet the needs of home economics teachers whose work lies in somewhat specialized fields. Attention also is being given to preparation of teachers for paid employment in fields requiring skills related to homemaking, such as child care, care of the aged, food services, and clothing services.

Distributive education programs that receive Federal subsidy at present are restricted to part-time instruction and are found largely in high schools. Teacher education of the preemployment type is provided by college-level schools of business administration, about 22 in number, with special curriculums designed for the preparation of distributive education teachers and coordinators. Directed work experience is required, varying from 600 to 700 hours, together with appropriate professional education courses.

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[2] *Digest of Annual Reports*, 1961.

Inservice teacher education is also provided. In 1960–61, there were 1,575 teaching positions in cooperative programs, and 5,307 positions in extension programs. Some difficulties are encountered in teacher education programs in schools of business administration in obtaining appropriate courses in the operational area of distribution. Some attention is now being given to evaluation of the teacher education programs. If Federal subsidy is made available for preemployment full-time day programs in distributive education, as recommended by this report, large numbers of additional teachers will be needed.

Practical nursing education programs recruit teachers from the ranks of registered nurses and supplement their training by suitable professional education courses. In 1960–61, there were 1,855 teaching positions in this field. The basic training varies considerably. Many have degrees in nursing education; some are graduates only of a hospital program. The background of training of each nurse is appraised, and pertinent inservice professional education programs are provided, including classroom and ward teaching, visual aids, course outlines, and lesson planning. Most States require attendance each year in planned workshops or courses designed to upgrade the teaching skills. Special Federal subsidy for practical nursing and other health occupations programs has been available since 1956, and the program is growing rapidly. Many more teachers will be needed in the years ahead.

In the field of vocational education for *business and office occupations*, no Federal aid has been provided. This report recommends that Federal aid be provided. If this is done, it will be necessary to develop programs of teacher education, perhaps patterned somewhat on those for distributive education.

Trade and Industrial Teacher Education

Teacher education for *trade and industrial education* differs markedly from that for most of the other fields. In 1960–61, there were 11,474 teaching positions in day schools, scattered among more than 80 occupational fields. In addition, there were 16,280 teaching positions in evening programs, and 7,472 in part-time programs. The diversity of occupational fields represented in the evening program is even greater than for the day schools. The need for occupational competency in such a wide range of fields precludes teacher-education programs of broad type which provide both the occupational content and professional education. Teachers must usually get their occupational competency through extended work experience. The teacher-education program thus is restricted to providing the professional education needed, together with content programs for updating teachers in technical fields after they enter upon teaching.

The qualifications for full-time teachers of trade and industrial education, as outlined in the various State plans, include specified amounts of basic general education, appropriate work experience, and professional education. The trade experience requirement may be from 2 to 7 years. The basic education requirement is usually high school graduation. The amount of professional education required varies from 0 to 576 clock hours. In some instances the requirement calls for only an interest on the part of the prospective teacher to participate in teacher training when such training is available. For the most part, teacher preparation takes place after the initial employment of the teacher. Candidates for teaching positions are frequently given written and performance tests to determine occupational competency.

Considerable variation is found among the States in the agencies used for providing professional education for full-time teachers. Half the States and territories have designated a college or university as the institution to provide the teacher training; one-sixth of them have appointed teacher-training staffs within the framework of the State educational department; one-third have assigned to their State supervisory staff the dual function of supervision and teacher training. The patterns utilized in teacher-training programs include full-time preemployment programs frequently resulting in a baccalaureate degree, part-time preemployment training, and various types of in-service programs. Among the latter are itinerant teacher trainers, extension courses operated under the auspices of teacher-training institutions or the State department of education, summer sessions, and workshops.

The full-time trade and industrial education programs devote about 25 percent of the schoolday to science, mathematics, drawing, and technology related to the specific occupation for which the student is being trained. Sometimes these subjects are taught by the same instructor who handles the shop teaching; in the larger schools they are taught by related-subjects teachers. The qualifications of the related-subjects teachers differ from those needed by shop teachers, and some States require technical training of the engineering or applied-science type supplemented by appropriate technical experience. The teacher-training courses provided for the related technical instructors differ somewhat from those for the shop teachers, with heavier emphasis on classroom and drafting-room teaching methods.

The difficult problem of obtaining trained teachers of trade and industrial subjects who have adequate trade experience together with good basic education and professional training might be partially solved by utilization of the cooperative program which combines work experience with college training. A typical program would include the equivalent of some 50 semester hours of supervised work experience and trade technology, some 50 semester hours of general subjects, including science and mathematics, and some 30 semester hours of professional education courses leading to the baccalaureate degree. Few institutions provide such programs, but they would appear to have important possibilities for providing for trade and industrial teachers a broad educational background as well as occupational skills.

Teacher-education programs for *trade extension teachers* in the evening schools have generally been limited in scope or have not been provided at all. Many of these teachers serve temporary assignments and do not feel that it is worthwhile for them to spend any extensive amount of time in preparation for teaching. Some States, however, have made special provision for training these trade extension teachers. The Texas itinerant plan serves teachers of apprentice classes, journeyman classes, and technical courses. It provides 50 clock hours of instruction, divided equally among courses in methods of teaching, demonstration teaching, course organization and planning, instructional aids, and organization and management of courses. The California program provides a 60-hour course made up of seven elements: identification of needs, teaching techniques, analysis of the learning process, preparation of teaching material, mechanics of class operation, evaluation of instruction, and some aspects of vocational education. A correspondence course is also provided, organized on the same general basis as the 60-hour program outlined above.

The duties of *teacher-coordinators* of part-time programs differ somewhat from those of the shop or classroom teacher. They are concerned with selection of students for cooperative programs, locating jobs for students, and coordinating the school and work activities. Qualifications include a minimum of 2 years of work experience, a baccalaureate degree, preferably with an industrial education major, and specified amounts of professional education. Considerable variation is found in the requirements of the several States.

Competencies of successful teachers were appraised by 121 State supervisors of trade and industrial education, 91 local supervisors or directors, and 103 teacher educators, who reported their satisfaction or dissatisfaction with respect to teacher competency in 24 specific items.[3] The competencies that received the highest expression of satisfaction were ability to demonstrate the skills of the trade, ability to develop safe work habits, experience in the skills of the trade, understanding the objectives of vocational education, tendency to teach at an appropriate level, and ability to maintain acceptable discipline.

Considerable dissatisfaction was shown for experience in the preparation of instructional materials; preparation in testing and evaluation; orientation to the total educational program of the community; and orientation to the types, locations, and services provided by community organizations concerned with industrial education. The respondents also were asked to indicate their satisfaction with the general level of preparation of recently prepared trade and industrial teachers. Forty percent of the group indicated satisfaction; 45 percent indicated dissatisfaction; and 15 percent of the group was undecided.

The appraisal of trade and industrial teacher preparation indicates a degree of satisfaction considerably less than seems to be required for truly effective teaching. Perhaps a review is needed of certification requirements for teachers, of the courses and course content in professional education provided, and of the patterns of organization of teacher-education programs. Much effective teacher training is now being provided, but steps may well be taken toward improving overall effectiveness.

Teacher education for *technician training* faces many problems. Occupational competency in technical fields is essential, but persons with such competencies are in great demand in industry at relatively high salaries. Some instructors have been loaned by industry for part-time teaching. The task of preparation of technician teachers is receiving considerable attention, with patterns evolving such as that at Oklahoma State University which provides for B.S. and M.S. degree programs combining technical, professional, and general education content. Ten States have already set up programs for this teacher education. Programs for the upgrading of such teachers have been sponsored in some institutions by the National Science Foundation. Qualified technical teachers are in critical short supply, and a strenous effort will be required to meet the needs.

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[3] John P. Walsh, *Teacher Competencies in Trade and Industrial Education*. Washington: U.S. Government Printing Office, 1960, p. 1.

Curriculum and Instructional Materials

This section deals with curriculum, courses of study, and various types of instructional materials for vocational and technical education programs. A curriculum may be defined as a series of interrelated courses of varying length, arranged in logical sequence, and designed to meet a stated educational objective. A course of study is a series of interrelated units of instruction, arranged in logical sequence, designed to meet a specific objective dealing with one facet of the total curriculum. Instructional materials in vocational and technical education include printed textbooks, workbooks, laboratory manuals, audiovisual aids, three-dimensional demonstration apparatus, and the like, designed to make the instructional task easier.

In the logical procedure of program development the curriculum as a whole is outlined, the content of the specific courses in the curriculum is developed, and the instructional materials needed for each unit of each course of study are worked out. In vocational and technical education the task of program development is a large one, complicated by the diversity of occupational objectives, by variations due to geography, and by differences in educational levels and types of programs.

The range of occupational fields in the total program of vocational and technical education is wide—agriculture, trade and industrial occupations, technical occupations, homemaking, distributive and marketing occupations, business occupations, health service occupations, and others. In trade and industrial occupations more than 80 different curriculums are offered at the high school level, and additional ones in institutions beyond the high school.

The situation is complicated by the many types of program offerings. Curriculums in the high school may run from 1 to 3 years in length and sometimes overlap into the 13th year. Those beyond the high school vary from intensive programs a few weeks in length to curriculums 2 years or longer. Preemployment training programs (full-time or part-time), cooperative (work-study) programs, and updating and upgrading part-time programs for employed persons are found on the high school and post-high-school levels.

Program variations occur because of differences in geography and climate. Machine-shop programs in areas of heavy concentration of metal products manufacturing tend to be different from those where the machine shop serves mainly as a maintenance function. The agricultural curriculum in Georgia includes instruction about tobacco and cotton, which is of little interest to the student in North Dakota. The homemaker on a ranch in Texas faces different problems from those of a working mother in a large city. The merchandising problems of the metropolitan department store differ from those of the agricultural implement dealer in the small Midwest town.

If appropriate vocational and technical education programs are to meet these varying needs, they must be designed to fit the conditions under which they will operate. In some cases the curriculum in one State will be much like that in other States; in other cases it will be different. The task of curriculum and course-of-study development, and the accompanying task of providing appropriate instructional materials, is thus a large and complicated one.

Curriculum and Course-of-Study Development

Curriculums—composed of a series of courses—are usually confined to full-time preparatory programs, but they also are found in part-time and extended evening programs such as related instruction for apprentices or in supervisory training. In the field of general education the range of curriculums is relatively limited as compared with that in vocational and technical education, and there is less variation among these curriculums in different sections of the country. High school curriculums that prepare for college entrance are much the same in all States.

In the trade and industrial field the occupational objective of the curriculum is usually a single occupation, or a small group of closely related jobs. In technical education the objective generally is preparation for a cluster of occupations requiring similar technical knowledge and skill, sometimes spreading across several occupational fields. Fewer standardized curriculums are found in agriculture and homemaking.

Standardization of curriculums across the Nation might well be practicable in certain fields. Automobiles face the same service problems in every State, with minor variations in areas of extreme climatic differences. Other service occupations—personal service included—likewise have common tasks. If standards for achievement of students are to be developed on a nationwide scale, it will require standardization of curriculums. There are assets and liabilities in standardization. A standardized curriculum in a given field would assure exposure of the student to like content in all areas. It could be developed in a central agency, with cooperation among the States, by highly qualified personnel using all available curriculum development resources, and should be a better curriculum than could ordinarily be produced by State or local effort. It could be revised at intervals to keep it in line with changing conditions. But if the occupational field varies to any considerable extent in different sections of the country, extreme standardization will not be practicable. Perhaps a partially standardized curriculum, with standard optional sections, might be used. Standardization of curriculum likewise requires standardization of courses of study, instructional materials, and instructional equipment, at least to a considerable degree.

Curriculums are developed at local, State, and Federal levels. Those produced at State and Federal levels generally take the form of "suggested" curriculums. Personnel engaged in curriculum development are usually supervisors or administrators who perform this task as a part of their many duties. Advisory committees are often used to assist in the development and checking of new curriculums, and for revision of existing ones. Some curriculums are developed in instructional materials laboratories, by staff members primarily concerned with instructional materials development, aided by supervisors or administrators and by advisory committees. Some of the curriculum development at the Federal level has taken the form of contracts with educational agencies. This practice was used by the Division of Vocational and Technical Education in implementing the title VIII program for the training of technicians, with the curriculum checked for completeness and accuracy by a panel of experts.

Responsibilities for curriculum development lie at Federal, State, and local levels. The Federal Government has a responsibility for gathering and disseminating information concerning curriculum materials completed or underway. It also has the responsibility for coordinating projects in this field which are subsidized by Federal funds, so that unnecessary duplication of effort can be avoided. The Federal Government may well take the lead in the development of curriculums in important new fields, working through the State education agencies or through direct contracts with qualified persons. Its primary function is coordination of effort.

The State education agency has the responsibility of coordinating work in curriculum development within its borders, in the various State institutions or local school systems concerned with the problem. It may also undertake the task of specific curriculum development, through contract or otherwise, in fields where special needs are present.

Mention should be made of the development of courses of study. When they comprise a curriculum they are developed in the manner outlined above, as the component parts of the curriculums. But specific courses of study are needed which are not parts of curriculums, such as evening or short-term day courses for updating, upgrading, and retraining purposes. Most of these courses are developed locally, to meet the specific needs of the group to be served. Although many of these group needs are somewhat specialized, there would seem to a place for more centralized development of suggested courses which could be modified to meet local conditions.

Curriculum and course-of-study development is needed for many types of programs in varied occupational fields. If basic vocational education courses are established in high school programs, much will need to be done in developing appropriate programs. If vocational and technical education programs in business and office occupations are included within the realm of Federal subsidy, much will need to be done in that field. Emerging technical occupations in industry and agriculture demand attention. Any expansion of work-study cooperative programs will need new course outlines. If preemployment programs for distributive and merchandising occupations are provided with Federal subsidy, curriculums and courses will be needed. Attention may well be given to further development in the health occupations and other fields. The needs are great and will not be met without considerable effort.

Agencies Concerned

Many different agencies are concerned with the development of instructional materials: commercial publishers; the Armed Forces; industrial manufacturers; trade associations; labor unions; Federal, State, and local education agencies; and others.

A considerable number of commercial publishers give attention to the needs of vocational and technical education. Some of them publish such material as a part of a larger publishing program; others confine their efforts to vocational and technical education. The main output is text and reference books, although some publishers develop teacher guides, study guides, and answer books. A few films, filmstrips, and recordings are available, designed to be used in connection with printed textbooks. Many of these publishers have had long experience in the field and have developed a high degree of skill in preparing and printing the materials. They also serve an important function in their promotional efforts, through acquainting teachers and educational administrators with new materials available in the several fields. The commercial publisher is in business to make a profit, and must necessarily limit his offerings to titles for which the market is sufficiently large. This eliminates from the field of the commercial publisher many types of materials for programs where the enrollment is low and where the occupational field is restricted.

The armed services develop instructional materials for their own use in training their military and civilian personnel. Most of their materials deal with specific military training, although they have prepared some excellent bulletins on instructor training and on basic technical instruction. Also, some of the military training parallels that of civilian life, in such fields as electronics, heavy equipment operation, and vehicle repair. Some of their materials are available through the Superintendent of Documents, U.S. Government Printing Office. The armed services have led in the development of three-dimensional aids, such as mockups, and of audiovisual materials.

Manufacturers of tools, machines, and technical equipment have done much in the development of service manuals, booklets on tool care and usage, charts, films, and filmstrips dealing with equipment and processes. In some fields, such as welding, comprehensive training manuals have been produced. Some companies have developed demonstration and laboratory instructional equipment, laboratory experiments, textbooks, and workbooks, as in the field of electronics.

Some trade associations have been active in instructional materials development, often working in cooperation with pertinent educational agencies. The American Petroleum Institute, for example, has worked actively with the instructional materials laboratory of the University of Texas. Some labor unions have also been active in this field, especially in the development of related instructional materials for apprentices.

Education agencies operating vocational and technical education programs have developed a great variety of instructional materials, ranging all the way from simple materials prepared by the instructor and duplicated within the school to comprehensive manuals published in quantity and made available to institutions throughout the country. Much of the locally prepared material was for the purpose of meeting immediate local needs, and frequently the quality of the content and the reproduction process left much to be desired. When well-prepared materials are not available, the instructor has to do the best he can with the resources at hand.

At the Federal level the Division of Vocational and Technical Education of the Office of Education is seriously concerned with the problem of development of instructional materials, but its primary functions in this field lie outside the actual development of the materials. In the early years of the Federal Board for Vocational Education several bulletins were developed, which helped in the promotion of vocational education by providing the States with material in syllabus form. Over the years the main task of the Division has been to encourage the States in their efforts.

Some State education departments and teacher-training staffs in universities are now operating extensive instructional materials laboratories. The operation of these laboratories is described later in this section.

Materials Developed During World War II

Through the stimulus provided by large amounts of Federal aid for war production training programs, several instructional materials laboratories were established by State boards for vocational education. These laboratories developed hundreds of different manuals in fields such as ordnance and aircraft inspection, machine-shop practice, tool design, aircraft manufacture, farm machinery repair, instrumentation, shipbuilding, electronics, assembly practice, welding, and the like. Some of the materials were developed primarily for use by the Armed Forces, but most of them were utilized in war production training courses offered in the public vocational schools. Many problems were encountered in the work of these laboratories. There was little coordination of effort from Washington, and hence considerable duplication of work resulted. Persons trained for the task were not readily available. Equipment and supplies necessary for the development of the materials were often in short supply. The work was frequently carried on in temporary quarters not well adapted to the task. Yet, in spite of the difficulties, the output of the laboratories was large, and the quality of much of the work was good. The development of the laboratories as a war measure laid the foundation for the emergence of those now operating in several of the States.

Materials Development in the States

In more than 20 States instructional materials for trade and industrial education programs have been developed for local and interstate use, largely in instructional materials laboratories. Some of these laboratories are operated directly by the State education departments; others are located in the industrial teacher-training departments of universities. Some of the laboratories prepare the materials for the printer, with the actual printing performed on contract. Other laboratories have their own printing facilities. Some laboratories make their products available to other States in quantity, at fixed prices; others limit their distribution to schools within the State except for single copies available to others.

The materials produced include information manuals, laboratory manuals, study guides, tests, answer books, instructor guides, and others. One State has produced a number of motion-picture films. The materials are designed for use in day preparatory programs, cooperative programs, evening and part-time classes, by students and instructors. The scope of occupational fields dealt with is illustrated by figure 28 which lists the number of titles, 50 pages or more in length, prepared for student use in more than 70 fields. In addition, these laboratories developed more than 200 titles of 50 pages or more for instructor use, and some 300 titles in the form of publications of less than 50 pages. The total number of titles developed amounted to nearly 1,000.

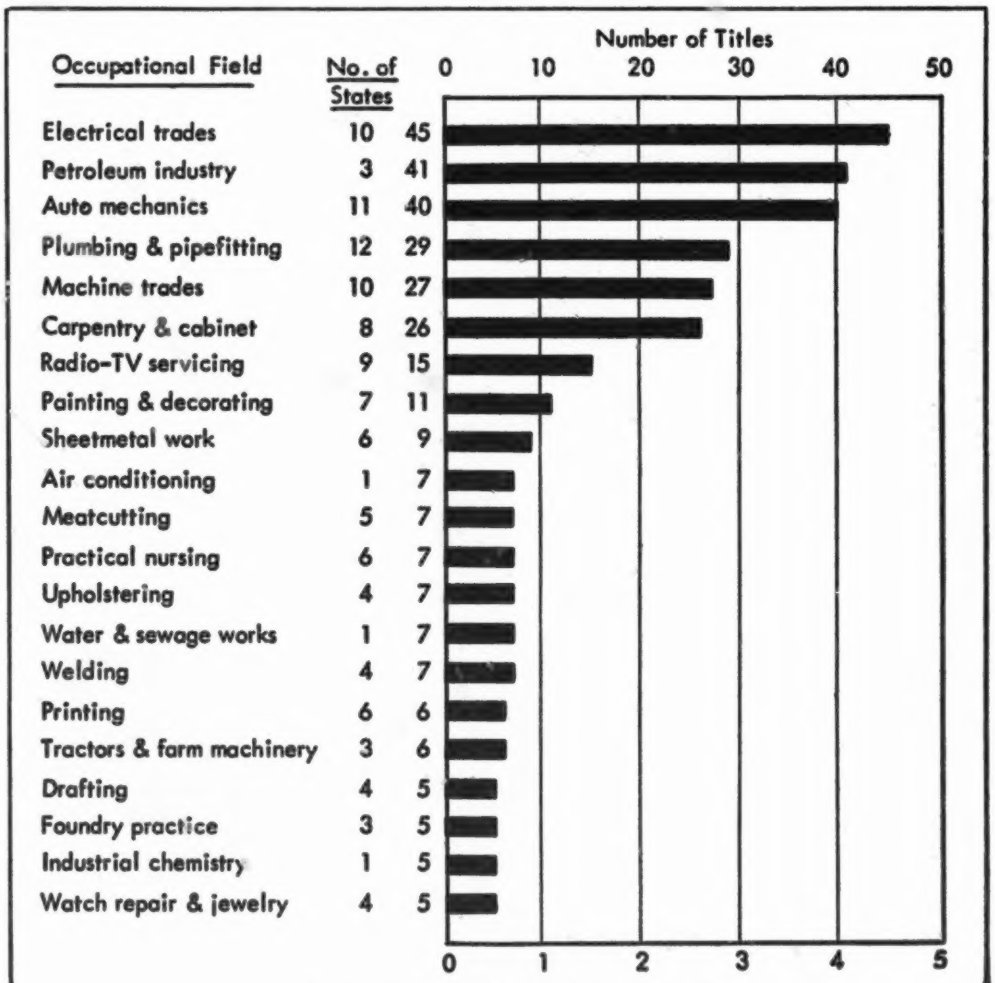
Analysis of figure 28 indicates a heavy concentration of effort in a relatively small number of fields, in most of which commercial publications are readily available. Much duplication is found in the materials developed, indicating the need for coordination of effort on a national level. At first glance at this table, one might draw the conclusion that little more needs to be done in these laboratories, but careful analysis of the titles indicates large gaps in materials for specific types of programs. Much of the material is available for distribution only within the State in which it was developed.

Figure 29 presents the activities of the various State laboratories in the development of titles of 50 pages or more for student use. The Texas laboratories head the list, with heavy concentration on petroleum production. These laboratories also produced 28 color films, largely dealing with petroleum. The materials developed in Missouri largely dealt with publications for use by students in cooperative programs in diversified fields. The Oregon laboratory concentrated largely on study guides for apprentice training, with volumes of relatively large size. The Ohio laboratory produced a considerable list of materials for use by instructors, including many publications of less than 50 pages not included in the table. The California laboratories developed a large number of study guides with accompanying tests, answer books, and final examinations. The total contribution of the laboratories subsidized by Federal funds has been a large one. They have produced a wide range and great volume of materials for use by students and by instructors. They have evolved new patterns of organizing and presenting the content in printed form, geared to the specific needs of the shop, classroom, and laboratory, and in this manner have influenced the patterns used by commercial publishers to some extent. They have helped to meet needs for instructional materials in programs too small to interest the commercial publishers.

Lack of coordination of the activities of the several laboratories, at the Federal level, has resulted in much duplication of effort which might have been avoided had the States been willing and able to get together with the Division of Vocational and Technical Education,

Figure 28.—Production of Instructional Materials for Trade and Industrial Education, by Occupation [1]

(Number of titles of 50 pages or more, for student use)



Occupational Field	No. of States	Number of Titles
Electrical trades	10	45
Petroleum industry	3	41
Auto mechanics	11	40
Plumbing & pipefitting	12	29
Machine trades	10	27
Carpentry & cabinet	8	26
Radio-TV servicing	9	15
Painting & decorating	7	11
Sheetmetal work	6	9
Air conditioning	1	7
Meatcutting	5	7
Practical nursing	6	7
Upholstering	4	7
Water & sewage works	1	7
Welding	4	7
Printing	6	6
Tractors & farm machinery	3	6
Drafting	4	5
Foundry practice	3	5
Industrial chemistry	1	5
Watch repair & jewelry	4	5

Occupational Fields With 1 to 5 Titles

Aircraft mechanics
Barbering
Blacksmithing
Bricklaying
Carding
Cement masonry
Cleaning & pressing
Commercial baking
Commercial cooking
Cosmetology
Custodian training
Dairy processing
Dental assistant
Dental technician
Dry cleaning
Electronics
Emergency & rescue squad
Engines – small
Fireman training
Floor covering
Floristry
Food service
Frozen food lockers
Glazing
Granite trades
Highway technician
Hospital housekeeping
Hydraulics
Ironworking
Lathing
Loom fixing
Lumber industries
Medical assistants
Mortician
Motion picture operator
Neon sign work
Optical technician
Photography
Plastering
Refrigeration
Roofing
Safety
Shoe repairing
Sign painting
Surveying
Tilesetting
Typewriter mechanics
Veterinarian assistant

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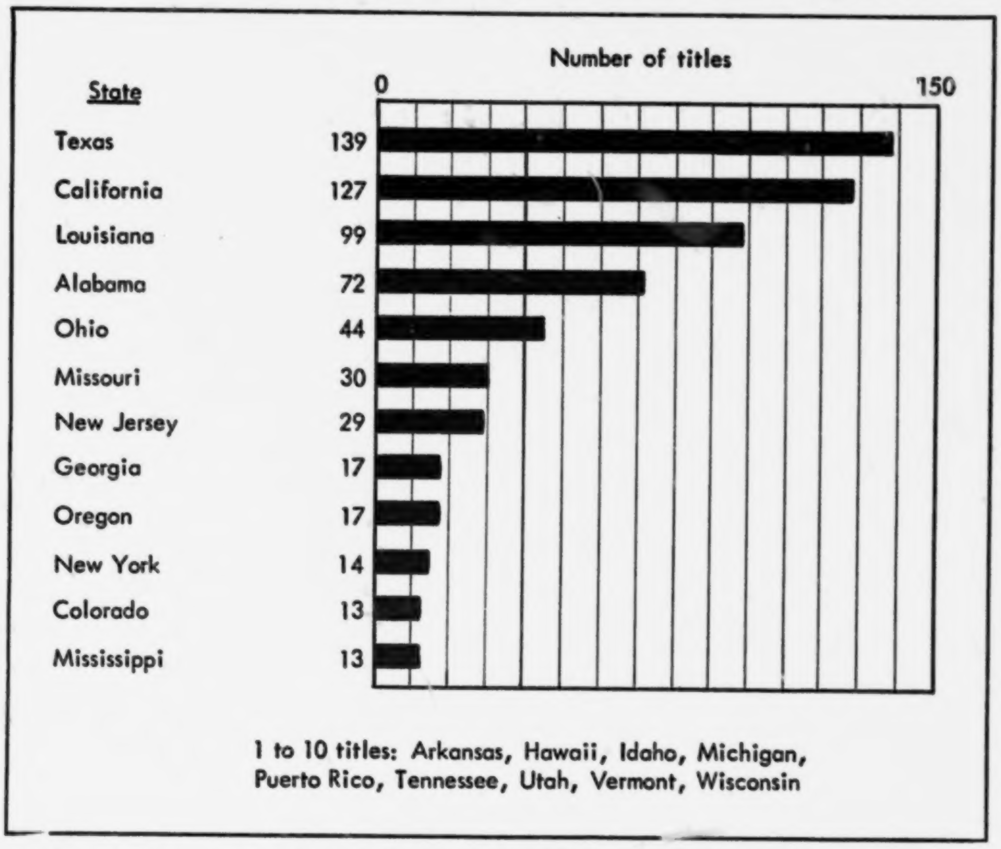
[1] Merle E. Strong. *Curriculum Materials for Trade and Industrial Education.* Office of Education. Washington: U.S. Department of Health, Education, and Welfare, 1961.

Figure 29.—Production of Instructional Materials for Trade and Industrial Education, by State[1]

(Number of titles 50 pages or more, for student and instructor use)



1 to 10 titles: Arkansas, Hawaii, Idaho, Michigan, Puerto Rico, Tennessee, Utah, Vermont, Wisconsin

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[1] Merle E. Strong. *Curriculum Materials for Trade and Industrial Education*, Office of Education. Washington: U.S. Department of Health, Education, and Welfare, 1961.

Office of Education, to work out a master plan for the country as a whole. There has been too much concentration on the development of materials for occupational fields already well supplied by commercial publishers, and too little attention to emerging fields in which little material is available. There has been inadequate dissemination of information concerning available materials at the grassroots level; too often the instructor who might use the materials does not know they exist. Often, sample copies sent to administrators or supervisors never reach the teachers.

Pride of local authorship and unwillingness to use materials developed by others has handicapped their distribution and use. Some States have not been willing to make the materials available to other States except for single copies. Some of the materials have used poorly planned formats, have lacked sufficient illustrations, and have been printed in unattractive form. The materials developed to date have dealt largely with the field of trade and industrial education;

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relatively little has been produced in the fields of agriculture, homemaking, and distributive education. Perhaps some of these difficulties might have been lessened if the task had been concentrated in fewer, better equipped, and more adequately staffed laboratories.

Present Needs

Curriculums and courses of study are needed in such fields as:

1. Programs under the Area Redevelopment Act, the Manpower Development and Training Act, and the expanding programs under title VIII of the National Defense Education Act.
2. New programs in agricultural, homemaking, and distributive education.
3. Basic vocational training for clusters of occupations at the high school level.
4. Emerging vocational and technical programs beyond the high school.
5. Updating and upgrading programs in evening and part-time schools.
6. Programs for youth with special needs.

Instructional materials are needed for all the types of curriculums and courses of study outlined above. Special attention may well be given to:

1. The development of programed learning materials, and materials for other new media such as a closed-circuit television.
2. Instructional materials for use with the overhead projector.
3. The design and development of pilot models of three-dimensional teaching aids, with plans and instructions for local production.
4. Materials designed to acquaint counselors with emerging occupational training programs.

Occupational Information and Vocational Guidance

The importance and relationship of occupational information and vocational guidance are recognized in most statements of goals and purposes concerning vocational education. Accordingly, the Panel devoted considerable attention to vocational guidance and its relationship to the improvement of vocational education. Its importance is reflected in the statement of objectives and standards in chapter 5. In addition to these evidences of importance, the various staff studies prepared for the Panel had considerable comment on the role and value of vocational guidance to the program. Notwithstanding all of these concerns for vocational guidance, an adequate evaluation of achievements and limitations in this area of service is impossible. Informal observations and appraisals are too subjective and numerous to consolidate. Fundamental definitions and descriptions of the guidance process are sharply in disagreement. The overwhelming expectancy of the public schools, and the number and manner of accomplishments which are anticipated from them, seem unreasonable and unfair when compared with the measure of public financial support. Unfortunately, this is part of the social setting of vocational education—and, in like manner, vocational guidance:

> Today, most reasonable persons would agree that participation in the occupational world is much more successful and satisfactory for the individual and for the community when adequate training and guidance have been provided for the entrant into the labor market. Just as the job market runs the gamut of all possible types of skills from day laborer to skilled surgeon, so, too, the possible types of training and guidance exhibit a wide range. Guidance and training are as necessary for the 16- or 17-year-old "dropout" from high school as they are for the college student uncertain about his future, often after several years of college training. But the paucity of efforts taken by communities for the guidance and training of youth and the haphazard approaches when they are taken have become more apparent as formal preparation of youth for the world of work is increasingly viewed as a social responsibility.[4]

Federal vocational education funds devoted to guidance and counseling amounted to approximately 10 cents per student enrolled in the year 1960–61. Although it is a fact that not much of the Federal fund for vocational education has been devoted to vocational guidance, it is also a fact that conclusions reached on the basis of such evidence are inaccurate and misleading.

Vocational guidance, vocational counseling, and occupational information are merely parts of the broader area of guidance and counseling. However, the vocational aspects of guidance and counseling do become significant and imperative, from time to time, in a person's life. It seems reasonable that the person concerned should be entitled to the advice and counsel of specialists who have an exceptional understanding of the world of work and its complexities. What is obviously needed is a counselor who meets all requirements of a professional background in pupil personnel services and who at the same time is a specialist in occupational information, vocational guidance, and counseling.

States and local schools differ greatly in the manner and in the extent to which they meet the need for vocational guidance. The Los Angeles Trade-Technical College is cited as an example of one of the many institutions having a well-developed program of student personnel services. Each student at Trade-Tech is given an extensive battery of examinations and interviews to aid him in selecting a training area. Followup studies are made of both dropouts and graduates. An extensive survey to determine training needs is maintained.

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[4] Brookover and Nosow, *op. cit.*

Students indicate their reactions to the many facets of Trade-Tech's program. From student questionnaires of June 1961, three questions and the response concerning counseling are of interest:[5]

What type or types of counseling have you received after you started at Trade-Tech?

	Percent of replies
Vocational	27.5
Personal	13.3
Academic	8.6
Job placement	8.6
None	38.6

From whom was the counseling received?

Counselor	23.3
Department head	5.6
Instructor	28.5
Employment office	6.5
None	42.5

What kinds of counseling do you feel should be made available?

Vocational	22.1
Personal	20.4
Academic	10.1
Job placement	29.7
None	10.8

Los Angeles Trade-Technical College is only one of many institutions with dynamic programs of vocational guidance, counseling, and occupational information. But such institutions are probably the exception rather than the rule.

One indication of the limitations of vocational guidance and counseling is shown by the following quotation:[6]

> In this country freedom of opportunity is an article of national faith. The vast majority of Americans believe that every American youngster should be free to enter any occupation for which he can qualify. When discriminatory practices restrict freedom of opportunity, they arouse nationwide controversy.
>
> Yet freedom of opportunity is restricted by a condition far more widespread and far less obvious than discrimination—the general ignorance among youngsters, and almost equally among their elders, of the myriad types of trained personnel required by our complex society. Ignorance of

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[5] Los Angeles Trade-Technical College, *Student Questionnaire Results.* Los Angeles, Calif., June 1961.

[6] National Manpower Council, *A Policy For Skilled Manpower.* New York: Columbia University Press, 1954, p. 266.

> available vocational opportunities can as effectively prevent access to them as restrictions rooted in racial, ethnic, or religious discrimination.

There is considerable evidence that the guidance efforts of a multitude of governmental agencies, private foundations and organizations, labor, business and industry, agriculture, and home economics are expanding, as indicated by increased services, research, and publications. In fact, the very abundance and enormity of the amount of excellent occupational information and vocational guidance materials can swamp the conscientious teacher, counselor, or librarian who seeks to consolidate a complete, up-to-date file of information. Occupational materials from the military have been excellent in quality and widespread in distribution. Vocational materials and numerous services of the Department of Labor, including the assistance of State employment agencies, have contributed immensely to the guidance services of school and local communities. Numerous other Federal and State agencies have made outstanding contributions. Notwithstanding all the materials and services and the great abundance of occupational information, it is a sad commentary that the persistent lack of effective guidance remains to plague the efforts and understanding of youth, adults, and senior citizens.

The progress of guidance services in the schools, at least in terms of supervisory activity, local guidance programs, and the preparation of counselors, has been steadily increasing. The Office of Education reported the following progress in 1960: [7]

> *State supervisory activity.*—Responsibility for initiating, maintaining, and strengthening State and local programs of guidance services rests with the State. Each of the 50 States and territories now provides guidance supervisory and/or consultant personnel within its educational agency. The number of full-time equivalent guidance supervisors or consultants at the State level has increased from 77 to 1958 to 194 in 1960.
>
> *Local guidance and counseling programs.*—During the past 2 years there has been a distinct trend toward the assignment of more time for counseling. Organized programs of guidance are now available to over 60 percent of the Nation's secondary school students. In fiscal year 1960, there were 18,739 full-time equivalent local supervisors and counselors employed in local schools who met counselor qualifications requirements established by the States. Current nationwide counselor-pupil ratio is about 1 counselor for every 600 students, as compared with 1 counselor to about 750 in 1958. It is apparent that significant progress has been made toward the desired ratio of 1 counselor for every 300 students.
>
> The stress which has been given to the early identification of talent has pointed up the importance of guidance at the elementary school level. A number of schools are utilizing comprehensive programs of pupil personnel

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[7] *Progress of Public Education in the United States of America, 1960–61.* Summary Report of the Office of Education, U.S. Department of Health, Education, and Welfare to the 24th International Conference on Public Education, Geneva, Switzerland, July 3–15, 1961. Washington: U.S. Government Printing Office, 1961, pp. 44, 45.

services to assist the teacher in dealing more effectively with the needs of children at all grade levels.

Counselor preparation.—State education agencies, in cooperation with counselor education institutions and professional groups, have intensified efforts to improve the level of counselor qualifications and the quality of counselor education programs have increased dramatically during the past 2 years. Several States are establishing counselor certification plans for the first time, and practically all States are upgrading counselor qualifications. Emphasis on quality characterizes counselor education programs.

A preliminary analysis of State reports for the 1961–62 school year shows that the rapid increase in State and local guidance and counseling personnel has continued. The total number of guidance and counseling personnel employed by public secondary schools now exceeds 36,000 and represents the equivalent of about 24,500 full-time counselors and supervisors. One of the most significant personnel changes has been the increase in the number of persons employed full time as counselors and supervisors. In 1959 this group numbered only about 7,000; in 1962 there were more than 15,700, or about a 124-percent increase. There was, in 1962, the equivalent of 1 full-time counselor available for each 550 students enrolled in public secondary schools, and over 70 percent of all public secondary school students had a counselor available who was qualified under State standards. If the growth trend of the last 4 years continues, at even a somewhat reduced rate, the Nation's public secondary schools should approach an adequate guidance and counseling staff, both in quantity and quality, between 1970 and 1975.

The number of full-time equivalent State-level supervisors of guidance shows little change since 1960, with 195 reported in 1962. Also, the State reports show the encouraging trend of more and more emphasis on career choice as a basis for educational planning through guidance and counseling activities for students, but with the increased involvement of parents, industry, and community agencies.[8]

Other sources, however, are less optimistic than the Office of Education's estimate of guidance services, even though they share the recommendation that more and better guidance services should be available to the boys and girls of the public elementary schools. In a study of the Bureau of Labor Statistics previously reported in this section of the Panel report (see Youth With Special Needs in chapter 7) there are stern reminders that guidance is nonexistent for many. If the opinions of the 6,500 young people who were interviewed in this study or whose families reported their experiences as school leavers and dropouts are valid and indicative, our guidance effort may truly be "too little, too late." Here, for example, are some revealing figures:

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[8] From preliminary draft, *Progress of Public Education in the United States of America, 1963.*

Highest grade completed by dropouts	*Percent*
ALL DROPOUTS	100
8th grade or less	31
9th grade	30
10th or 11th grade	39

> It is of enormous significance that as many as one out of every three dropouts did not get beyond the 8th grade; that almost two out of three never reached senior high school—that is dropped out before the 10th grade. And while we will summarize the implications of these findings later on, it will not be amiss to note at this point that a significant and substantial proportion of dropouts exit from the schools well before *most kinds of occupational information or other facets of the guidance and counseling process even begin to function* under current conditions. Practice on this score varies substantially, of course, but among the areas surveyed only about one out of every 3 dropouts had had any manner of vocational guidance at all.[9]

In strong support of the idea that guidance should begin much earlier, the Bureau of Labor Statistics study has the following rationale:

> These findings suggest that perhaps some of our occupational education and guidance might begin much sooner than it does now. We teach a young person to read and spell in the elementary grades before we present him with the "Lady of the Lake" as an assignment in high school. We teach the young person to add, subtract, and the rest of the arithmetical operations in elementary school before we present him with a high school problem in algebra. Perhaps we should also develop attitudes and information orienting the young person to such environmental forces as the world of work in the grades before presenting him with formal guidance programs at the high school level. These thoughts suggest that *the guidance function itself—as indeed it already is in many school systems—might also become more and more a developmental process beginning down in the grades instead of a discrete one which commences at some arbitrary chronological age or school year.*
>
> Dr. Conant's very first recommendation in his recent report calling for the development of guidance and counseling at the presecondary level is, of course, very much in accord with this hypothesis. The practical consideration, as shown by our findings, that a significant part of the school population (and one which apparently may need it most and commented on the fact they indeed missed it) does not even reach the point where a counseling service is now provided is also a factor to be reckoned with.[10]

The lack of timely and appropriate guidance services is illustrated generally in the Nation's meager concern and provision for young people who have special education and vocational needs. In terms of the problems of today's youth and their many needs, particularly the needs for employment, the conclusion of Cara M. Beyer is basic. "More part-time and vacation jobs are needed. Because opportunities for youngsters are so few, some people think they should be allowed to work at any job available, whether it is suitable or not. *Surely, we ought to be able to do better by our boys and girls than this.*" [11]

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[9] Wolfbein, *op. cit.*, p. 708–9. [Italic supplied.] Ten percent of these dropouts were under 16 years of age; 34 percent, 16; 27 percent, 17; 17 percent, 18; and 12 percent, 19 or over.

[10] *Ibid.*, p. 713. [Italic supplied.]

A lack of realistic guidance on the part of guidance personnel, and the fact that guidance has become merely clerical in nature, are concerns of a spokesman for labor, the chairman of the AFL-CIO Committee on Education. In a special report to the Panel of Consultants, other inadequacies are also indicated:

> *Counseling and Guidance.*—Counseling and guidance services presently available to vocational high school students are very inadequate—both in quantity and quality. Guidance personnel quite often lack sufficient knowledge about occupations, labor markets, and training problems. Actually, vocational counseling has become more or less a clerical and mere information function. Better relationship should be established between counselors and State employment services. Counseling and guidance for vocational students must be of the same quality as is available in many schools to college "material." [12]

Inadequacies of Definition and Description

The purposes and functions of guidance and counseling do not lack for definitions, descriptions, controversies, and a professional vocabulary which is very confusing and technical to even the professional educator. Although the guidance effort had its beginnings in the early 1900's when the importance of vocational guidance was stressed, one dare not assume at the present time that vocational guidance is accepted as a universal concept among all who claim professional competence as practitioners or teachers in the field of guidance and student personnel work.

The following description is probably typical of the views of the vocational educator.

> Essential service in a program of vocational guidance includes providing the individual with cumulative evidence about his abilities, interests, and aptitudes; providing for comprehensive factual information about educational and occupational opportunities; specific training and employment opportunities; providing means for aiding in the placement and adjustment

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[11] *Ibid.*, pp. 736–737. [Italic supplied.]

[12] Peter T. Schoemann, *The Changing Needs of Vocational Education.* A Report to the Panel of Consultants on Vocational Education. Washington: United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry, Aug. 10, 1962, p. 11.

> in the next step of the individual's career; and providing for the counseling of individuals. Counselors are specially trained professional workers who have had teaching and practical experience in addition to special preparation in a group of progressive knowledges, skills, and understandings secured under competent instruction which enables them to counsel individuals, provide leadership and assistance to the school staff in guidance matters, and accumulate and interpret data from the guidance program for use of the school staff in planning the evolving school program.[13]

The views of Peter Schoemann that guidance has become a routinized informational and clerical process is reinforced by the observations of Ruth Barry and Beverly Wolf in their new volume, *An Epitaph for Vocational Guidance: Myths, Actualities, Implications.*—They indicate some of the modern pitfalls.

> School guidance workers appointed to their work *without adequate counselor training* seem to find security in an *information giving and receiving role* closely resembling that they filled as teachers. Other school guidance workers believe that they should not "meddle with personality" and hence feel less meddlesome freely giving vocational advice, little realizing that this act is the greatest meddling of all, for what a person does and becomes is a dynamic part of his personality.[14]

The balanced view of the professional in guidance is, of course, that counselors should be comprehensively trained to deal with the "whole person," and not merely with one or another segment of his needs; i.e., personal, vocational, educational, etc. The problem is to recruit and develop personnel who have both the background of professional training and the practical work experience, in and out of teaching, to bring balanced and professionally competent services to meet the normal needs of normal students as early and appropriately as possible in their educational growth and development.

Guidance for All

Of equal importance is the problem of making guidance services available to *every* boy and girl. Currently, there is striking evidence among school leavers, dropouts, and a host of maladjusted youth that a great deal more guidance is needed on the part of the school, the home, the church, and the other institutions of society.

If students are to find appropriate places in occupations, an effective guidance program is essential. "General guidance will not do the job. There must be effective vocational guidance in order to match ability and interest with job needs and requirements."[15]

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[13] *Digest of Annual Reports*, 1960, p. 68.

[14] Ruth Barry and Beverly Wolf, *An Epitaph for Vocational Guidance: Myths, Actualities, Implications.* New York: Bureau of Publications, Teachers College, Columbia University, 1962, p. 185. [Italic supplied.]

For young people who are going directly to work upon leaving school, the need for guidance seems to be critical. For those who have special problems there are vast needs for guidance, and, if the purpose of education is to seek the maximum development of all young people, surely guidance must be provided for each one of them.

> Because we can learn so much about a youth from the occupation he prefers, we need to explore this area of interest with young people constantly. This does not mean that we will expect 14-year-olds to make a vocational choice and stick to it. It does mean that delicate responsiveness on our part and a constant program of information are the responsibility we have.
>
> Such a program of guidance, you will agree, is not an emergency service. It is for every pupil. This, I believe, is the essence of a guidance program—that it offers to *every* child help in attaining fulfillment, aid in solving problems, assistance in knowing himself, and the right to be himself at his best.[16]

The problem of offering guidance services to every boy and girl (and to many adults, as some specialists suggest) is akin to providing vocational education to all youth and adults. The crux of the problem rests with the financial willingness of the local, State, and Federal Governments to implement the service. Despite the professional argument on whether guidance should deal with the "whole" person or with his occupational needs and interests, there seems to be consensus that the service should be available. The National Manpower Council devoted considerable attention to guidance and its relationship to the development of skilled manpower; a summary paragraph of its report indicates its idea of theory and practice.

> In theory there is no reason why young people cannot be provided with broad counseling for life adjustment in addition to more restricted vocational guidance. In practical terms, however, school systems have a limited amount of money, personnel, and time to devote to guidance and counseling activities. The newer emphasis on dealing with the pupil's adjustment problems may compete with vocational guidance for the available resources. Or counselors now concerning themselves primarily with vocational guidance may turn their attention to other areas of counseling. It seems likely that the increasingly broad goals of guidance may work against more effective vocational guidance.[17]

In translating "the broad goals of guidance" into the "guidance movement," the Council indicates another fear and makes a suggestion.

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[15] *Education for Tomorrow's World of Work, op. cit.*, p. 8.

[16] Benjamin C. Willis, "The Contribution of Guidance to the High School Educational Program," *Readings in Guidance: Principles, Practices, Organization, Administration.* Edited by Lester D. Crow and Alice Crow. New York: David McKay Co., 1962, p. 438.

[17] National Manpower Council, *op cit.*, p. 278.

> The effectiveness of vocational guidance may be endangered by the increasing ambitious goals of the guidance movement. These goals lead to programs which seek to counsel the youngster regarding all his adjustment problems. They may thus divert attention and effort from the specific objectives of vocational guidance. If attention were concentrated on the basic objectives of vocational guidance more youngsters would derive greater benefit from their secondary education and a greater number would seek advanced education and training. This would be a significant contribution to the more effective utilization of the Nation's human resources.[18]

Among the five major long-range objectives which must be pursued, the National Manpower Council suggested that a more effective program of vocational guidance be developed. The following recommendations should give support to this development:[19]

1. State and local governments and boards of education recognize that the provisions of essential educational and vocational guidance services is a major responsibility of secondary education by increasing substantially and rapidly the funds and staff available for guidance and counseling purposes
2. School officials use their guidance and counseling staff primarily for vocational guidance purposes and, when expanded resources of staff and funds permit, also for counseling students with personal adjustment problems
3. School officials make vocational guidance available no later than the ninth year and have it continue throughout the high school course, and that they assign to the classroom teacher major responsibility for helping the student to make sound educational and occupational decisions
4. School officials take the lead in their communities to assure a vigorous cooperative effort, in which industry, business, labor, government, the armed services, and civic groups participate, to provide occupational information and other types of assistance essential for effective vocational guidance.[19]

The status, suggestions, and recommendations concerning vocational guidance as reported by the National Manpower Council were reviewed by an Arden House conference in 1955. Vocational guidance, among many subjects related to the development of the Nation's resources of skilled manpower, was discussed by a working group and in the general sessions of the conference. The conference report concerning the guidance problem is organized around a treatment in question form. Reactions to the original statements of the National Manpower Council are partially indicated in question 2: *What can be done to encourage school officials to use their guidance and counseling staff primarily for vocational guidance purposes?* Odell shows the numerous difficulties related to solution of the question: (*a*) The problem of organizing and coordinating guidance services, and partly a problem of philosophy and policy in operating school guidance services; (*b*) the diversion from vocational and educational guidance into other areas sometimes occurs because principals and teachers mistakenly unload on the counselor all the "problem" children in the school; (*c*) the load of routine administrative and recordkeeping duties in which counselors become involved; and (*d*) the historical association, in the educator's mind, of vocational guidance and vocational education.[20]

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[18] *Ibid.*, p. 282.
[19] *Ibid.*, pp. 5–6.

> This is reflected in much of the early literature in vocational guidance; also, in the administrative organization of guidance services in the U.S. Office of Education, in most States, and in many local school systems. It is also reflected in the controversy which has developed in the professional guidance movement and among counselors. The aversion to the word "vocational" in guidance is a widespread phenomenon. It is not due primarily to a feeling that vocational guidance is passé or unimportant. It is due primarily to a desire to break away from the old idea that vocational guidance is the handmaiden of vocational education rather than a basic service needed by all students regardless of their course of study.[21]

It is doubtful, even assuming adequately financed guidance services, that the philosophical problem of attitudes and approach of school administrators, teachers, and counselors to vocational guidance could be overcome, Odell asserts:

> In reorganizing guidance services, the U.S. Office of Education has recognized this problem and has announced that as of July 1, 1955, the guidance service will serve all levels of education and, organizationally, will be located in the general education program rather than in the vocational program. Similar steps should be encouraged at the State and local levels so that guidance is no longer identified as a servant of only the vocational education program. To some readers this suggestion may seen to be at cross-purposes with the objective sought in question 2. Actually, it is not. Proof of this lies in the recent reorganizations of guidance services in New York and California. Both have resulted in broadening the scope and effectiveness of general pupil services and strengthening the nature and extent of vocational and educational guidance in the schools.[22]

Research

The importance of research in the field of vocational education must be recognized more widely and steps taken to develop research commensurate with needs. In this era of rapid technological change, many things are happening that affect vocational education. New scientific concepts are emerging. New materials and processes are appearing in industry. New instruments, machines, and process controls are replacing older ones. Occupations are changing rapidly. Industries are moving into new geographical areas. Significant changes are taking place in the age, characteristics, and spread of the population. These, and other changes, affect vocational and technical education.

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[20] Charles E. Odell, "Vocational Guidance and the Skills of the Work Force." *Improving the Work Skills of the Nation.* National Manpower Council. New York: Columbia University Press, 1955, pp. 41–42.

[21] *Ibid.*, p. 42.

[22] *Ibid.*, pp. 43–44.

If vocational education is to meet the needs of training in this rapidly changing world, it must adapt itself to changing conditions. Its patterns of organization must fit into the evolving educational structure of the Nation. Its curriculum content must be in line with technological and social needs. Its methods of instruction must be in keeping with the latest and best understanding of how people learn and how they can be taught most effectively. If vocational education programs are to provide adequately for the needs of a State or of the Nation as a whole, or if specific programs are to be effective, much more information is needed than is now available. This is the task of research—on a broad scale—from specific studies of detailed problems to nationwide studies of problems involving the whole country.

Industry, business, and various branches of Government have recognized the great need for research and development in these changing times. Hundreds of research agencies have come into existence, and their budgets now total many billions of dollars. Vocational education should not lag behind in this vital aspect of its program.

The need for research in vocational education has long been recognized. In 1917 the Smith-Hughes Act made provisions for research, as follows:

> It shall be the duty of the Federal Board for Vocational Education to make, or cause to have made, studies, investigations, and reports, with particular reference to their use in aiding the States in the establishment of vocational schools and classes and in giving instruction in agriculture, trades and industries, commerce and commercial pursuits, and home economics. Such studies, investigations, and reports shall include agriculture and agricultural processes and requirements upon agricultural workers; trades, industries, and apprenticeships, trade and industrial requirements upon industrial workers, and classification of industrial processes and pursuits; commerce and commercial pursuits and requirements upon commercial workers; home management, domestic science, and the study of related facts and principles; and problems of administration of vocational schools and of courses of study and instruction in vocational subjects.

Subsequent acts have continued the availability of Federal funds for purposes of research in vocational education. In the current revision of the rules and regulations for the administration of vocational education, reference is made to research, as follows: [23]

> 102.29 *Research, studies, investigations, and experimentations.*—(a) Expenditures may be made under the State plan for research that will function directly in the furtherance of any or all of the federally aided fields of vocational education, when such research is conducted as a part of a State program of administration, supervision, or teacher training.

Research has thus been authorized and encouraged. Much has been done, but the results have not been commensurate with the needs.

A considerable amount of research which has bearing on vocational education has been carried out by many different agencies not directly connected with vocational education agencies. The Department of Labor and its affiliates in the States have conducted surveys of occupational needs and requirements on a national, State, or area basis. These have included the comprehensive studies of technician requirements made by the Bureau of Labor Statistics; the occupational surveys made by employment security commissions and departments of labor in such States as Arizona, New York, North Carolina, Utah; and other studies of occupational needs in specific fields or for specific groups. The Engineering Manpower Commission has investigated needs for technicians, and the American Society for Engineering Education aided by grants from the Carnegie Corp. reported in 1931 and in 1959 on its extensive studies of technical institute education. Many other studies have been made by various agencies outside the schools which have had bearing on agricultural, home economics, and distributive education, as well as industrial and technical education.

Much research has been carried on within the framework of the overall vocational education program, on Federal, State, and local levels. On the Federal level during the early years following the passage of the Smith-Hughes Act the Federal Board for Vocational Education gave considerable attention to research, resulting in such noteworthy publications as *Bulletin 52* on the machinist trade, the first publication showing the use of job analysis as a basis for curriculum development. This was followed by other publications in such fields as bricklaying, paperhanging, stonecutting, firefighting, and training for police service. Over the years many studies have been made by staff members in the Division of Vocational and Technical Education of the Office of Education in all the occupational fields served by the program. The current lists of Office of Education publications include reports of studies such as the following:

Electrical Technology
Electronic Technology

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[23] *Administration of Vocational Education, op. cit.*, p. 8.

History of Agricultural Education of Less Than College Grade in the United States
Inservice Education of Teachers of Vocational Agriculture
Buildings, Equipment, and Facilities for Vocational Agriculture Education
Summaries of Studies in Agricultural Education—Annotated Bibliography
Food Service Industry—Training Programs and Facilities
Management Training for Small Business
Space and Equipment for Homemaking Programs
Studies of Home Economics in High School and in Adult Education Programs
Management Problems of Homemakers Employed Outside the Home
Technological Advances and Skilled Manpower
Vocational-Technical Education for American Industry
Teacher Competencies in Trade and Industrial Education
Organization and Effective Use of Advisory Committees
Research in Industrial Education
Guides for Developing Curricula for the Education of Practical Nurses

One fairly comprehensive nationwide study of vocational-technical training for industrial occupations reported in 1944 (now out of print) is still useful.[24]

Research conducted as a part of a State program of vocational education has covered a wide range of subjects. Some of these studies took the form of statewide surveys of vocational education needs, such as those recently made in California, Florida, Ohio, Connecticut, Oregon, Illinois, and North Carolina. In some cases the study was restricted to a local area such as Kansas City, Syracuse, or New York City; countywide surveys such as those made in New Jersey and New York; or area surveys such as that of the San Fernando Valley in California. A large number of studies have been carried out in connection with graduate study in the field of vocational education. These dealt with a considerable variety of subjects, including development of curriculums and courses of study, local occupational surveys, evaluation of local programs, development of specific instructional materials, appraisal of various aspects of administration of vocational education programs, and the like. Most of the graduate theses have been of the normative-survey type; a few used the historical, case-study, or controlled-experimentation methods.

All in all, there have been relatively few comprehensive studies and many small ones. The larger studies generally have been carried out with good research techniques. Many of the smaller studies have been limited in scope, and somewhat superficial in depth.

The scope of the research projects carried out in the various universities or under the direction of State education departments has been wide. The titles indicate that the research grew out of felt needs.

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[24] *Vocational-Technical Training for Industrial Occupations.* Washington: U.S. Government Printing Office, 1944.

It is probable that many of the findings were utilized as a basis for determining changes in vocational education programs. Some general observations concerning research in vocational education indicate that:

1. Much of the research has been applied research.
2. Little attention has been paid to research in the basic sciences and disciplines that underlie vocational education, such as the psychology of learning specific manipulative and technical skills, human relations in occupational settings, and the like.
3. There has been little experimental research under controlled conditions.
4. A considerable amount of the research has been somewhat superficial, with little depth or penetration. The gathering and classification of the data have absorbed so much energy that little was left for reflective thinking with respect to the meaning of the data collected.
5. Although most of the research has been local in scope, with relatively little value outside the local area, a number of large-scale cooperative projects have been undertaken involving more than one State. Leadership for some of these studies has come from the U.S. Office of Education.
6. Vocational education has utilized but little the resources available under the broad cooperative research program of the Office of Education.
7. The reports of many studies have had limited circulation, perhaps through lack of a suitable medium for publishing the research findings and because of limited editions of published studies.

Some of the reasons why research in vocational education has followed the pattern outlined above are as follows:

1. Few persons have been trained for the field of research in vocational education, perhaps because the opportunities for full-time employment in research in this field are limited.
2. Most vocational educators are pragmatists, interested mainly in the tasks they are held responsible for, rather than in research. They usually undertake research only when faced with a problem that demands it and shy away from really tough research jobs that require a great deal of time, energy, and concentrated reflective thinking.
3. Much of the research in vocational education grows out of requirements for graduate degrees. These requirements, especially at the master's-degree level, can often be met by minor studies rather than through comprehensive research projects. Too few persons in vocational education have taken enough graduate work to be able to do good research, and many of those who carry out extensive research studies lose their interest in research when the requirements for the degree have been met.
4. University professors in vocational education fields, who might be expected to carry on research themselves, are often so loaded with teaching and other duties that they have no time and energy left for research. Many of them prefer to teach. Sometimes the available time beyond that

required for teaching, which might be utilized for research, is devoted to outside paid consultant service to supplement low salaries.

5. Comprehensive research requires special facilities and adequate financing, which have not been available.
6. Research activity on the part of many vocational educators has been neglected because their superior officers do not recognize its value and do not give sufficient recognition for work in this field.

An overall comprehensive research program in vocational education would entail large studies and small ones—studies nationwide or regional in scope, studies encompassing a single State, or studies dealing with a local area, of the normative-survey type. It would cover all the fields of vocational education and deal with critical aspects within the various types of programs in these fields. It would include studies in the basic subject-matter fields, such as mathematics and science, that underlie the vocational content and the functioning of the basic content. Many of the studies would deal with applied research, growing out of current problems. The overall program would include studies that would bring together pertinent findings from such disciplines as psychology, sociology, and economics under an approach similar to the "operations research" programs of industrial establishments and the Armed Forces. If conducted on a scale commensurate with the needs in vocational education, it would encompass more than has ever before been attempted in this field.

The *attitudes and sensitivities* of vocational educators regarding the status, progress, and needs of their research effort are revealed in two position statements to the Panel. The first statement reflects the needs in agricultural education, particularly in the development of leadership in a proposed national center for advanced study and research.[25] The second statement, and one which more broadly states the case for needed research in all of the occupational educational categories, also advocates the establishment of the center-idea or institute-type of clearinghouse, primarily for research purposes.[26] Both statements emanate from professional vocational education groups representing the American Vocational Association. In recognizing the primary need for research administration and implementation, the research committee points out:

> Obviously, vocational education in our contemporary and future occupational complex cannot play a meaningful role to our citizens and to our country's national security and defense amid the paucity of research which presently exists because of our inadequate resources and feeble efforts.

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[25] *Proposal for a National Center for Advanced Study and Research in Agricultural Education.* A committee from the American Vocational Association, Dec. 3, 1961, 9 p. (mimeo.)

[26] Research Committee of the American Vocational Association, *Provisions for Vocational Education Research.* June 1962, 21 p. (mimeo.)

> With full recognition of all that this strong statement implies, the research committee feels most acutely that the greatest priority of consideration of research needs should be for the establishment, on a national level, in (1) the proposed Institute of Occupational and Educational Research, and (2) in the Office of Education, of specific administrative leadership in vocational education research and effective resources to sustain it. Since 1917 and the inception of the vocational education acts there has been no such provision, and the educational lag has been painfully obvious as new demands of succeeding and contemporary legislation have confronted the vocational education program.[27]

The research committee would attach to the institute the basic research purposes of coordination, stimulation, education, communication, and implementation. These functions should be brought to bear upon the forces which will continue to affect vocational education in the Nation: (*a*) the extension of educational opportunity, (*b*) the emerging technology, (*c*) the nature of the occupational complex, (*d*) worker retraining and mobility, (*e*) youth, the middle years, and the labor force, and (*f*) the future and its challenge.

> The research committee is not optimistic for the future of vocational education if research needs and implications continue to be ignored and bypassed because of supreme concerns for program operation and lack of vision for the magnitude of responsibility for future programing. It is still further concerned lest research become primarily a crash concern at times of national stress in tangential aspects of the overall occupational education program. Almost half a century of vocational education as we have come to know it in our time verifies the need for research activity in all parts and levels of the total occupational education program. If occupational education has come of age, research must permeate all aspects of its planning, operation, organization, administration, and evaluation. Lacking the contribution of meaningful research, occupational education will play, at best, an impotent hit-and-miss function in the lives and welfare of few citizens.[28]

The scope of research needed in vocational and technical education is great, and a long list might be made of specific questions for which research might provide answers. The following questions are representative of studies needed:

1. What criteria should be established for the development of a statewide program of area vocational schools—geographic or population areas to be served, tax base, sizes of schools, range of curriculum offerings, and the like?
2. What are the geographical bare spots in the Nation with respect to opportunity for vocational and technical education, and what measures can be taken to provide coverage?
3. If and when specialized vocational and technical education moves largely into institutions beyond the high school, what kind of curriculum offerings will be needed in the high school to provide for the types

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[27] *Ibid.*, p. 1.
[28] *Ibid.*, p. 9.

of students who previously were enrolled in specialized vocational programs?

4. To what extent are present preemployment training curriculums in line with present-day needs in the occupational fields for which the training is designed, and how can they be kept in line with needs?
5. What should be taught in the vocational school as compared with what industry and business should teach, in specific types of training programs?
6. What technical occupations—now here or emerging—are found in agriculture, business, industry, the health fields, and other areas of employment for which training programs are not now available, and how can appropriate training be provided?
7. What are the special homemaking problems faced by the woman who is employed outside the home and who has family homemaking responsibilities, and what can vocational and technical education do to help in meeting these problems?
8. What personality traits are demanded in specific occupations and what contribution toward their development can be made in vocational and technical education programs?
9. What qualifications are needed by vocational and technical teachers—basic and technical education, occupational experience, professional teaching competency—and how can they be met?
10. What criteria are most useful in the selection of students for specific preemployment training programs?
11. How effective are the various types of specific instructional aids, including programed learning, in vocational and technical training programs?
12. What are the vocational education needs of the aging, and how can they be met?
13. What modifications of teaching methods are desirable in training the unemployed worker, youth with special problems, and other special groups?
14. What problems are faced in providing vocational education for underdeveloped countries, and how can personnel for such programs be effectively trained?

These are some of the many questions that must be answered if vocational and technical education is to attain the effectiveness it should have. The answers to some of these questions will require long and expensive research projects; others might be answered by studies of lesser magnitude. The kind of research needed will involve trained research personnel, research facilities, time, money, and effort.

The main responsibilities for the promotion and development of research in vocational and technical education lie with the boards that control vocational and technical education at the State level, and with the agencies within the U.S. Office of Education concerned directly with this type of education. Their functions include the following:

1. Compiling information on the kinds of research needed.
2. Planning comprehensive research programs at State and national levels.

3. Promoting the development of research projects encompassed in the comprehensive program plans, and allocating funds for these projects.
4. Carrying out specific research projects, such as statistical studies of programs and State program planning.
5. Collecting, interpreting, and disseminating information on research underway, and coordinating research activity to avoid undesirable duplication of effort.
6. Translating the results of research into improved programs. The role of the U.S. Office of Education encompasses research projects of nationwide import. The State boards are concerned with projects of intrastate interest. As indicated earlier in this section of the report, the actual carrying out of research projects is done by various agencies and individuals within and outside the framework of public vocational and technical education.

Summary

Conclusions

Administration, Supervision, Finance

- Administration and supervision influence and exert quality control over the occupational categories of vocational education.

- Proper administration at the local school level will provide the environment necessary for the development of excellence in vocational education.

- Each State has a staff of vocational education consultants who assist local districts with developmental and other problems in vocational education.

- The amount of Federal financing of vocational education and the size of the professional staff at the Federal level are small compared with the funds and staff for other Federal agencies with comparable responsibilities.

Teacher Education

- Although teacher education is required by the Federal acts, each State has been free to develop its own program.

- Teacher education programs for agriculture, home economics, and distributive education have been largely conducted as parts of baccalaureate degree programs.

- Trade and industrial teacher education, because the teacher must have an extensive occupational background, has not usually been conducted in a baccalaureate degree program. The States exhibit extreme variations in the ways and means used to provide teacher education for trade and industrial education.

Curriculum and Instructional Materials

- Instructional materials are limited or nonexistent for many vocational education curriculums. Commercial publishers often cannot justify development of these materials because of limited demand.
- Curriculums have not been developed for many of the newer occupational specialties.
- Local and State vocational education agencies have developed curriculums and instructional materials for only a limited number of vocational education programs. Help from the Federal Government would enable them to expand this work.

Vocational Guidance

- Occupational information and vocational guidance are very important for young people as they progress through school and make choices related to their vocations.
- A great mass of occupational information and some vocational and placement services are available from numerous Government agencies, especially the Department of Labor.
- Despite the special Federal legislative provisions, specialized State supervision, local and State expenditures, and the services available from many agencies—business, industry, labor, agriculture, and others—there is dissatisfaction with the results achieved.

Research

- Although a considerable amount of research has been carried out, it falls far short of meeting current needs.
- Some compilations of completed research projects have been made at the national level—largely graduate-student theses—but no comprehensive reporting has been done, and little has been done with respect to coordination of research activities.
- Research projects in vocational and technical education have largely been confined to those of normative-survey type, with little attention paid to experimental research under controlled conditions.

Limitations

Administration, Supervision, Finance

- Many school districts are too small to provide a diversified offering of vocational training or to provide proper supervision of vocational teaching activities.

- The State plan for vocational education may not be effective where those affected by its provisions have not been involved in its preparation or when it is not kept up to date.
- The Federal Government, which has encouraged and stimulated the development of vocational training, today provides only a minor portion of the support for this educational activity.
- The administration of vocational education at the Federal level is handicapped by a status which does not permit its maximum effectiveness.

Teacher Education

- All vocational teacher-education programs need provisions for frequent review, evaluation, upgrading, and redirection. Although the specific problems are different in each of the occupational categories, effective teacher education is a major asset in vocational education and should not become static and routine.
- Teacher-education programs should reflect newer ideas of teaching and learning. One of the major problems in adapting research findings to specific teacher-education programs is to reduce the timelag between research findings and actual utilization of data.
- The Federal leadership in vocational education does not occupy a position where it can be fully effective in liaison contacts and leadership functions.

Curriculum and Instructional Materials

- A national plan for coordinating the development of curriculums, courses of study, and instructional materials is needed. This will require interstate and Federal cooperation, with the main coordination responsibility in the Federal office.
- Programs of vocational education are handicapped by lack of knowledge of the existing resources within the States and the lack of a plan for a nationwide group of instructional materials laboratories capable of meeting the needs.
- A plan for close cooperation must be worked out between the instructional materials laboratories and other agencies which publish instructional materials. Such a plan should help to utilize more fully the materials developed by all and to reduce the overall cost.
- Activities of the instructional materials laboratories must be coordinated with research agencies dealing with this field. This might well involve locating the laboratories and research agencies in proximity to each other.

- Substantially increased financial support for programs of curriculum and instructional materials development is necessary, as well as increased attention to the training of professional personnel for curriculum and instructional materials development.

Vocational Guidance

- There is much misunderstanding concerning the nature of vocational guidance in its relationship to occupational information and other phases of counseling activities.
- Opportunities to provide vocational guidance are not fully realized. For whom is vocational guidance intended? Is there an appropriate amount of vocational guidance for every student? What is the role of the school, the home, the church, and other institutions?
- Much vocational guidance is shallow. There is too much guidance of a clerical type, an information giving and receiving process with little concern or knowledge of the demands of occupations and the world of work. How, and to what extent, is the occupational information process related to personal and social guidance? If one has never worked in business or industry, how well equipped is he to guide or inform someone else?
- The competencies required of personnel in guidance are not well understood. What qualifications make the effective counselor? To what extent can the understanding teacher help?
- A tendency toward an aristocracy of guidance seems to exist. Is too much of the guidance effort devoted to seeking the talented? Are teachers and counselors themselves oriented strongly to higher education, prone to favor the collegebound? To what extent are the teachers' marks predeterminants of other courses, occupations, and social status?
- Vocational guidance does not avail the potential army of dropouts. How does guidance help the delinquent, the reluctant, the culturally deprived? More and better education of all types at all levels for all citizens is the current and predicted demand. To what exent will guidance promote this? Of what importance to the Nation is a meaningful program of occupational information and vocational guidance?

Research

- Little money has been available from any source to support research in vocational education, yet few fields of inquiry would appear more promising in terms of benefits to individuals as well as society.
- The leadership of vocational education has not been committed to the necessity for continuous research. Those who control vocational education funds, preoccupied with immediate operational responsibilities, often do not attach importance to activities beyond those necessary in the current program.
- A considerable amount of the research has been superficial, with little depth or penetration.
- Relatively little research has pooled the resources of the different disciplines that have bearing on vocational and technical education, such as sociology, economics, psychology, and labor market analysis.

CHAPTER 9

Summary of Major Needs for Improvement

CONSIDERATION of the major limitations of the vocational education program here is intended to provide a basis or framework for presentation of the suggestions and recommendations of parts III (Improvement and Redirection) and IV (Role of the Federal Government) in the latter pages of this report.

Vocational education should take pride in its achievements, but not be content with them. In this day of rapid change and advancing technology, realistic modernization of the program must take place. In order that the proposed redirection of the program and the recommended role of the Federal Government can be specifically indicated, the following present limitations of vocational education are briefly summarized:

The public's image of vocational education is a product of many factors. It is a paradox that vocational education is valued so highly among other nations because of its importance to the economy, yet it is minimized or disregarded by many in the United States. Individuals and groups who have been served well by vocational education, and who know and understand its purposes and its program, are most likely to hold strong favorable views of it. Organized labor has supported vocational education strongly over the years, and its representatives have participated generously in the development of vocational courses. Professional groups of businessmen, of manufacturers, and of a great number and variety of occupational interests have gained so favorable an impression that some make exaggerated claims of the values and contributions of vocational education. For the most part, Members of Congress have consistently viewed vocational education with favor because of its potential value to individuals, the general welfare, and the national defense.

In an overcrowded curriculum and in overcrowded schools, however, vocational education competes in a never-ending battle for its share of attention. Value systems are developed that emphasize one area of education in preference to others; the extreme attention to pure, rather than to applied, science and mathematics is one example, and the emphasis upon higher education is another. With respect to the latter emphasis, one authority comments:

> The heavy emphasis on college is, of course, very pleasant for those whose abilities and motivations will lead them to complete 4 years of higher education. Until recently it was considerably less pleasant for those who wished or needed only a year or two beyond high school; but today such youngsters are increasingly well served by junior (or community) colleges, 2-year technical institutes, and 2-year programs in universities. For all other young people, the emphasis on higher education is apt to be a source of considerable strain. All too many are led to believe that in failing to go on to college, they have missed the high road of American life.
>
> This is unfortunate and unnecessary. Properly understood, college or university is merely the instrument of one kind of further education for those whose interests and capacities fit them for that kind of further education. It should not be regarded as the sole means of establishing one's human worth. It should not be seen as the unique key to happiness, self-respect, and inner confidence.
>
> We have all done our bit to foster these misconceptions. The root of the difficulty is our bad habit of assuming that the only meaningful life is the "successful" life, defining success in terms of high personal attainment in the world's eyes. Today attendance at college has become virtually a prerequisite of high attainment in the world's eyes so that it becomes, in the false value framework we have created, the only passport to happiness.[1]

Despite differing perceptions, images, and values, the work of society must go on; vocational education can and does contribute significantly to the successful completion of that work. The conflicting conceptions of vocational education probably hamper attainment of its goals and objectives. The most serious result of misunderstanding of the values of vocational education unquestionably is the denial of occupational opportunity to youth and adults.

Lack of data and tangible evidence, it must be admitted, make it difficult for laymen or professionals to fully evaluate the national program of vocational education. This lamentable fact was stated by the Advisory Committee on Education in 1938; it is still true. Objectives and standards are quite valueless if, as criteria of appraisal, they cannot be compared with data that indicate whether, or how efficiently, purposes are being achieved.

Generally, vocational educators over the years have accepted responsibility for placing their students. Some have taken seriously the attendant responsibility to maintain placement records and to make followup reports of the students' progress and problems. Educators are increasingly aware that placement has become more important, as well as more complex, due to the changing nature of occupations; larger geographical labor markets; and greater insight, attitudes, and abilities required of workers in addition to specific occupational skills and related technology. Yet there are no national data with which to analyze and appraise placement.

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[1] John W. Gardner, *From High School to Job*. Reprinted from 1960 Annual Report, Carnegie Corporation of New York, p. 4.

Various local communities maintain placement records. These studies over the years have contributed some information on the placement of vocational education students, but for the most part these data are limited to individual States and communities. Occasionally, State departments of education and local communities have cooperated with public employment services in reporting the placement of vocational students. Among the most complete, continuing studies are those sponsored by regional groups of cooperating States, such as the surveys of placement of trade and industrial education graduates in the Central North States and the North Atlantic States.

The fact remains, however, that there are no data which permit nationwide quantitative and qualitative analysis of this vital aspect of vocational education. If it is agreed that supply-and-demand factors affecting the work force are important to the Nation's technological and economic progress, national placement and followup data must be collected and analyzed. Data concerning demand are available from the U.S. Department of Labor and elsewhere. National data concerning a major source of supply, placement of vocational students, do not exist, except with respect to the placement of technicians trained under provisions of the National Defense Education Act and, prospectively, those individuals trained in the programs authorized by the Area Redevelopment Act and the Manpower Development and Training Act. This serious gap in educational accounting permits no comprehensive judgment of the progress of the vocational education program.

Enrollments in vocational education are not sufficient to satisfy either the needs of people or the projected needs of the labor force. Hundreds of thousands, perhaps millions, of youth and adults in rural and urban America are denied the amount and kinds of opportunities for vocational education which, as citizens of a free society, they should have. If the States and the Federal Government seriously intend to provide these opportunities, a great deal more than token expansion should occur, with special attention, in particular, to the following programs.

> *High school programs* have not kept pace with the increasing numbers of young people, their concentration in urban centers, or their special difficulties in entering the labor force. These shortcomings of the occupational education programs in most American high schools reflect generally insufficient concern for

youth and lagging financial support from the Federal Government.

Youth with special needs are not well served by high school vocational education programs. There are too few special programs to promote the retention and adjustment of these troubled young people. Public vocational education could, with additional support, provide special services to alleviate some of the problems of youthful delinquency and unemployment. By itself, of course, vocational education cannot solve these vexing social problems.

Most *dropouts* seek employment when they leave school; but generally they do not possess salable skills, and the jobs open to them are quite limited. If the potential dropout's school program could be adjusted to include occupational preparation, he might remain in school longer. There is little objective evidence, however, to show that vocational education does promote retention of students in school.

Expansion of the *cooperative* (school-work) *program* of vocational education is particularly attractive as a means of solving, in part, the school dropout problem. The preemployment programs of vocational education have similar possibilities. But with the general availability of vocational education in the public high schools of the Nation as limited as has been shown, the potential dropout is often denied the potential advantages of vocational education.

Post-high-school programs of vocational and technical education are emphasized by a number of economic and social factors. Automation, mechanization, and greater efficiency have increased productivity and created many new types of jobs while eliminating the need for others. The result is a growing need for persons equipped with more exacting skills and more extensive knowledge. Much of this highly skilled or semiprofessional training must be given to more mature persons in an educational program beyond the high school.

Despite the evident and growing needs, many communities and some States provide no (or very few) opportunities for vocational or technical training beyond the high school. Such programs require buildings, equipment, teachers, and instruction materials lacking in many local school districts. Often local school districts also lack the funds, the professional competence, or even the desire to expand their programs to offer occupational preparation beyond the high school. Some institutions of higher education are willing to provide some of this training, but, in general, institutions of higher education prefer to offer educational programs which lead to a degree. Nevertheless, the national need for more technicians in all fields must obviously be met. No qualified educational system or institution should be neglected as a source of supply.

Out-of-school youth and adults require expanded programs of vocational education for upgrading, updating, retraining, and preparatory training for new careers. But vocational education programs have not expanded to meet these changing occupational needs.

In 1960 the number of persons in the 20–64-year age group represented approximately 52 percent of the total population, or 93.7 million persons. Most of this group were members of the labor force. During the year 1960-61, nearly 2 million persons were enrolled in classes in vocational education which have been previously identified as "out-of-school youth and adult" classes. Although these two groups—the 20–64-year age group and those enrolled in classes for out-of-school youth and adults—are not completely comparable, the enrollment represents approximately 2 percent of the 20–64-year age group.

In some respects, 2 percent appears to be an insignificant achievement. On the other hand, it would be difficult to obtain an estimate of the *optimum* percentage of the age group that should be enrolled in such classes. There does appear to be a consensus, however, that continuing education programs are highly desirable, perhaps imperative, and that current enrollments should be multiplied by some factor.

John W. Gardner discusses the problems of learning throughout life with particular reference to the transition from formal school to the labor force. Gardner holds that this transfer is a national problem and is the concern of every school:

> The successful transition of young people from school to job will become easier to accomplish as the artificial wall between the schools and the outer world breaks down. Fortunately, that wall has been crumbling for some time, and is certain to disintegrate further. The vast development of industrial, military, and other educational programs outside the formal system is striking evidence of that fact. In some communities the young person may get almost precisely the same course in a school setting or in an industrial setting.
>
> It isn't only the wall between the school and the outer world that is breaking down. Also disintegrating is the notion that education is something that goes forward with no interruptions until it is capped by some sort of graduation ceremony, whereupon it ends forever. We are coming to recognize that education should be lifelong, that it may be interrupted at many points, and that it may take place in many settings.

> We should expect it to become an accepted practice for men and women to enroll in one or another kind of educational program intermittently throughout their lives. The boy who leaves school early may resume his education after a year of work or a period of military service. The mature individual may enroll in an educational program to acquaint himself with new technological developments—or sheerly for his own enjoyment. Women may return to education after their family responsibilities are over. Retired people may resume their education.
>
> When the populace as a whole comes to recognize that education should be an enduring thing in their lives and can take place in a variety of settings, then the artificial emphasis on certain types of education will recede. Emphasis will be on individual fulfillment and personal growth, however they may best be furthered. And they will be sought for all.[2]

To be sure, the burden of continuing education does not fall exclusively upon vocational education. Other groups make significant contributions to lifelong learning. Nevertheless, vocational education will be an important part of the continuing education of the future.

Homemakers are not listed as a part of the labor force, although they constitute the largest single occupational group in the United States. High school home economics is offered to enable girls to meet their responsibilities for strengthening family life. Since girls today marry at younger ages than formerly, usually they make use of their training in home economics soon after leaving high school. In the United States today, 53 percent of all girls between the ages of 15 and 19 are, or have been, married. Not only one out of every three brides but also one out of every four mothers bearing a first child is less than 20 years old.[3]

The number of young women acting as both homemakers and partial breadwinners emphasizes the need of high school girls for training in home economics. The trend toward more women working outside the home is expected to continue in the next decade. More than 23 million women were in the Nation's labor force in April 1960, an increase of 3.6 million above the World War II level in April 1945.[4] It is predicted that 40 percent of all women will be working outside the home by 1970. These trends indicate the desirability for girls to be satisfactorily prepared for homemaking as well as employment.

Girls in high school, young women, and mature women are being trained for an expanding range of employment. But girls and women enrolled in public vocational education programs in 1961 included only 20,000 in beauty culture programs, most of whom were earning a high school diploma while training; 12,000 in commercial food training programs; 30,000 learning commercial dressmaking, alterations, remodeling, slipcovers and drapery work, and power machine sewing; and 62,000 in programs for such health occupations as practical nursing, nurse's aids, dental assistants, medical assistants, psychiatric aids, and medical laboratory assistants.[5] These enrollments are far too low.

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[2] Gardner, *op. cit.*

[3] Icie G. Macy, "Nutrition and the Teenager," *Reference Papers on Children and Youth*, prepared for the 1960 White House Conference for Children and Youth, Washington, D.C.

[4] "What's New About Women Workers?" Women's Bureau Leaflet No. 18, Rev. 1960. U.S. Department of Labor, Washington: U.S. Government Printing Office, 1960. P. 4.

Services that assure quality in all vocational education regardless of grade level, type of student, or occupation for which training is offered, urgently require more professional attention and increased Federal support. In particular:

Teacher education is directly related to the effectiveness of the entire vocational education program. Larger numbers, more selective recruitment, and better preparation and inservice training of teachers must be achieved. High occupational competency is demanded of vocational teachers; the schools must therefore compete with the higher salaries and other benefits offered by business, industrial, and agricultural enterprises. This problem is more acute in the case of vocational teachers than of teachers generally. The continuous need to upgrade and update the occupational competency of teachers is also acute in vocational education.

Curriculums and instructional materials should be brought up to date quickly, as occupations change and teaching methods become more effective. In vocational education, a national plan for coordinating curriculum and materials development has been implemented much too slowly. More State and Federal resources should be allocated to this urgent task.

The general problem of curriculum and program development cannot be reviewed as a unity because of differences in the groups of students involved. In-school preparatory programs should concern the occupational area in its most modern and up-to-date context, but should stress foundation or fundamental elements of the occupational area, which change far less rapidly than specific skills. On the other hand, out-of-school youth and adults, who are usually employed workers seeking to update and upgrade themselves, must concentrate on the most recent elements of occupational change.

In theory, vocational education reacts quickly to changing occupational needs; in practice, there is much to be desired. Normally, programs of vocational education, if supported by proper cooperative relationships, adjust automatically to the changing occupational environment. However, the extent of the vocational programs is quite limited in most schools, and the schools do not readily add new programs.

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[5] All data from Office of Education, Division of Vocational and Technical Education, *Girls' and Women's Training*. Washington: U.S. Department of Health, Education, and Welfare, 1962. Staff Paper No. 2 prepared for the Panel of Consultants on Vocational Education, April 1962.

Research has been conspicuous by its absence in vocational education. Although a great deal has been done by the U.S. Department of Labor and others to specify and estimate the demand for trained workers, the research related to their supply is sorely lacking. Little investigation has been made of the needs for vocational education and the types of service required to satisfy those needs.

Research of an evaluative type, which is fundamental to sound development, has been also very limited. Little or no evidence has been gathered regarding the results or effectiveness of the instruction given, and various rationalizations and excuses have been offered over the years for inadequate program statistics. In 1938, the Advisory Committee on Education strongly censured the "inadequate reporting" of the program.[6] Obviously, this major weakness has not yet been corrected.

Investment in vocational education is today grossly incommensurate with the national interest and Federal responsibilities. The Federal acts have achieved to some degree their original objective of promoting and encouraging vocational education in the States; local and State expenditures now far surpass the Federal investment.

A general discussion of the relative investment in the various occupational categories of vocational education was included in chapter 3. Trends and relationships of Federal, State, and local expenditures were treated briefly, as well as the Federal expenditures per pupil for in-school youth for four occupational categories. The maximum, minimum, and median expenditures were obtained after determining for each State the actual expenditure of Federal funds per student (see table 28).

Uniformity is neither expected nor desired. Each State reserves the right to distribute Federal funds according to a plan which reflects the best interests of the State's vocational education program. There are, of course, many factors that contribute to the complexity of these data, including the ability of the State to finance education in general and the enrollment in vocational programs in relation to allocation of Federal funds. The Federal funds have increased

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[6] Russell, *op. cit.*, p. 134–136.

Table 28.—Federal expenditures for vocational education per pupil, in-school youth and out-of-school youth and adults: United States, 1960–61 [1]

Vocational area	Expenditure per pupil					
	In-school youth			Out-of-school youth and adults		
	Maximum	Minimum	Median	Maximum	Minimum	Median
Agricultural education	$110.00	$0.82	$26.25	$31.00	$0.20	$7.50
Trade and industrial education	121.50	1.10	25.00	15.10	.42	5.37
Home economics education	33.70	.19	7.98	7.95	.06	2.62
Distributive education	204.00	1.04	35.71	17.90	.40	3.26

[1] All data based on corresponding issues of *Digest of Annual Reports*, Division of Vocational and Technical Education, U.S. Office of Education.

slowly in comparison to enrollment increases in the various States. If the enrollment in any of the occupational categories should double, a State might need to reduce by half its allocation to local districts.

Financial support by the Federal Government, States, and local communities has not kept pace with the increasing need for a trained work force. The Federal expenditure for vocational education is indeed meager in relation to the number of people to be served and the resulting individual and national benefits. Given the obvious and demonstrated significance of vocational education to economic growth, high employment, and national defense, the Federal Government should more strongly support and participate in this program.

The legislative patchwork of the past will not suffice, however. Despite the administrative downgrading at the Federal level and the increased complexity of its statutory framework, vocational education has made outstanding contributions during and following two World Wars and in some heavy economic weather. But adding successive legislative "patches" to meet every ill wind which blows across our land is both poor long-range planning and evidence of little faith in the local-State-Federal partnership at the heart of our political system. Unification of Federal legislation for vocational education to provide a broad and flexible foundation for the future is now long overdue.

Part III

Improvement and Redirection

Laws and institutions must go hand in hand with the progress of the human mind . . . as new discoveries are made, new truths discovered and manners and opinions change . . . institutions must advance also to keep pace with the times.

—THOMAS JEFFERSON

CHAPTER 10

The Need for Change

THE PRODUCTIVE SKILLS and the creativity of the American people have been major factors in the great economic achievements of the United States. The ability to produce has been closely allied with the system of education. Preparation of the individual for occupational competency through vocational education can be of unique assistance to the national economy during this period of technological, economic, and social change.

> The status of the individual must remain our primary concern. All our institutions—political, social, and economic—must further enhance the dignity of the citizen, promote the maximum development of his capabilities, stimulate their responsible exercise, and widen the range and effectiveness of opportunities for individual choice.[1]

Changing conditions are evident. Population growth and changing population characteristics create problems but also present opportunities. Manpower supply and labor market demands are often in imbalance. Automation in industry creates new needs in human and economic engineering. World common markets may intensify many of these problems in the near future. Political self-realization and the economic uncertainties of developing countries create new international conditions which may affect the economy.

Vocational education has an essential service to perform under these changing conditions. Improvements will have to be made and redirection will have to be given to present educational activities in order that vocational-technical education may do its part adequately.

Vocational education has been in a position to benefit some areas of the country and some segments of the economy more than others. A study of six selected States[2] suggests that urban youth have had different vocational education opportunities than rural youth. The availability of vocational education to out-of-school youth and adults has varied greatly among States and between communities of different size within a State. Education for employment has not always been equally available, regardless of race, creed, or sex. Change in the scope and program of vocational education can provide educational opportunities through which many more citizens can achieve the economic security and social well-being consistent with the goals of the Nation.

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[1] *Goals for Americans,* The Report of the President's Commission on National Goals. Englewood Cliffs, N.J., Prentice-Hall, Inc., 1960, p. 3.

[2] *The Availability of Vocational Education in Six Selected States.* Washington: U.S. Department of Health, Education, and Welfare. A special report prepared for the Panel of Consultants on Vocational Education, July 1962.

But change is never easy, since it threatens the pattern of life and work of many. Most persons either consciously or unconsciously resent indications of the need for change. Probably the most common response is to ignore the facts which indicate the need for change and to continue traditional patterns of conduct. This is true of individuals; it is true of institutions.

Other forces that impede change include lack of funds, gaps in knowledge, legislative limitations, and outmoded administrative patterns. However, the forces which hinder change in vocational education can be overcome as the leadership in this field is able to create a program of vocational education to serve society more effectively. Vocational education programs have responded quickly and effectively whenever clear national goals were set, when urgency was apparent, and when adequate financing was provided.

The training for war production was a dramatic illustration of what vocational education did in response to a critical national need for trained workers. Nearly 7.5 million persons acquired the skills they needed for war-production activities in the 1941–45 period.[3] A more recent illustration is the program for training practical nurses. The medical profession reported a critical shortage of persons trained to provide nursing assistance in hospitals and homes. Congress authorized and financed, in 1956, practical nurse training which resulted in 495 practical nurse training programs in 48 States and an increase of 66 percent in the number of trained practical nurses.[4]

Recent Federal legislation indicates an emerging realization that vocational education has a major role in assisting people in this period of employment uncertainty; namely, (*a*) Technician training under title VIII of the NDEA,[5] (*b*) training under the Area Redevelopment Act,[6] and (*c*) training underway in the Manpower Development and Training Act of 1962.[7] The training and retraining authorized by these acts place a greater responsibility on vocational and technical education and will make extensive changes necessary in the present program. The first-year appropriation for training under the Manpower Act alone, for instance, is nearly half as much as the current appropriation for all the traditional categories of vocational education.[8]

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[3] W. Daniel Musser, *Vocational Training for War Production Workers.* Washington: Federal Security Agency, 1946, p. 131.

[4] Margaret D. West and Beatrice Crowther, *Education for Practical Nursing, 1960.* New York: National League for Nursing, 1962.

[5] Public Law 85–864, 85th Cong., approved Sept. 2, 1958.

[6] Public Law 87–27, 87th Cong., approved May 1, 1961.

[7] Public Law 87–415, 87th Cong., approved Mar. 15, 1962.

The Federal Government has contributed funds to States for the development of vocational education for 45 years. This assistance has been effective in encouraging the growth of vocational education programs and in expanding local and State support for these programs. The people, the economy, and the national security could benefit appreciably from an extension of these educational services.

Vocational or technical education is not available to many young people and adults. To meet their needs and be of service to the national economy, it will have to be made available in many more locations and for many more occupations.

The number of people to be served in the United States in the 1960–70 decade by vocational and technical education will be very large. The number of young people who will be entering the labor market without a college degree in the 1960–70 decade may be estimated as follows:[9]

Not completing high school	7,500,000
High school graduates not entering college	10,290,000
Entering college but not completing a degree	5,093,000
Number needing preemployment training	22,883,000

These estimates will have a considerable degree of accuracy if present enrollment and dropout trends continue. Many of these youth should be given vocational training before they complete high school. Others will complete high school and then make their choice of an occupation and take vocational training. Some will have the aptitude for very exacting skills requiring extensive mathematical and scientific knowledge; others will need training for general skills and very little, if any, theoretical knowledge. Although not all persons new to the labor market will have been trained for employment in public school vocational education programs, the potential number greatly exceeds present enrollments.

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[8] See ch. 2.

[9] Based on *Manpower Challenge of the 1960's*, *op. cit.*, p. 16; Projections by Educational Statistics Branch, U.S. Office of Education, Department of Health, Education, and Welfare, Washington, D.C., Apr. 16, 1962; May 16, 1962; May 2, 1962; and 1957–66 entries.

This group, however, does not represent the entire number of people to be served by vocational and technical training. Many workers will need training in vocational programs to upgrade and update their skills. There probably will be 87 million workers by 1970.[10] No one can estimate with any degree of accuracy the number who will have to be upgraded in skills or retrained. However, the federally reimbursed vocational training program in the 1950–60 decade enrolled more than 10 million for training to upgrade their occupational skills.[11] When the possibility of retraining is added to preemployment training and training to upgrade skills, the grand total could be more than 25 million persons.

The problem of providing this training is complicated by the following factors:

1. Skills and technical knowledge of varying degrees of complexity will be required in many different occupations. The skills required and the occupations involved may change drastically from year to year and from one area of the country to another.
2. Automation and mechanization will make many skills obsolete with little transfer to new occupations. Population mobility, military inductions, and the loss of women from the labor force to homemaking will increase the problems due to "turnover" in manpower.
3. Extensive and rapid change will create other problems.
   a. There are no organized programs of study and very few teachers for many of the occupations for which training is needed.
   b. Obsolescence of equipment and facilities will make it even more difficult to finance the expanding program.

These factors make it quite difficult to provide training. Public schools will not do all of this training; private schools offer vocational education and business and industry provide training to upgrade the skills of their employees,[12] activities that should continue and be increased. Some military training is closely related to civilian employment needs.[13] A few of the labor unions are giving training for their trades in some locations. However, the public schools will have to accept the responsibility for much of the total task.

Education must be a continuous process—not simply a vaccination given to make the individual thereafter immune to ignorance or need for change. No longer will a person be able to enter the world of work with a set of skills which will serve him through his working life. He must be in a position to continuously upgrade his skills or learn new skills if he is to maintain his economic security. The need for lifelong learning is now a fact of life. Its impact will be extensive on the programs and institutions of education and on the way of life of individuals.

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[10] *Manpower Challenge of the 1960's, op. cit.*, p. 13.

[11] *Digest of Annual Reports.*

[12] Harold F. Clark and Harold S. Sloan, *Classrooms in the Factories.* Sweet Springs, Mo.: Roxbury Press, Inc., 1961; and Harold F. Clark and Harold S. Sloan, *Classrooms in the Stores.* New York: New York University Press, 1962.

[13] Harold F. Clark and Harold S. Sloan, *Classrooms in the Camps* (to be published in 1963).

While the Panel has limited its specific recommendations to vocational education, it recognizes the importance of all efforts to provide functional literacy to all our people. For all practical purposes the citizen without functional literacy is lost to the labor force and certainly is not eligible for effective vocational training. Efforts should continue to be made at the Federal level to provide training to the 7,800,000 citizens who do not now possess functional literacy.

Vocational education can be effective only when the student has acquired basic educational skills. Reading, oral expression, written expression, and numerical computation are important for all but the most rudimentary forms of employment. Vocational education should never conflict with basic education.

Vocational education contributes to the total educational effort by: (*a*) keeping many young people in school for a longer period of time, (*b*) making education more meaningful in that vocational training illustrates the importance of many aspects of the curriculum, and (*c*) providing the opportunity in the schedule of the vocational student for cultural and general education subjects. High school programs of vocational education have always provided that a liberal proportion of the curriculum be devoted to the development of basic educational skills. In trade and industrial education, half the school week is usually allocated to development of skills and the other half to related technical subjects and general education courses. In agricultural, distributive, and homemaking programs, the proportion of general education courses is usually higher.

Preemployment vocational education programs are designed to meet the needs of individuals for occupational competency in entry jobs in gainful employment; yet they also must develop the individual as a useful citizen in a democracy. To achieve this dual purpose, they must give due consideration to general education. High school programs may well include a higher proportion of general education than those on the post-high-school level, since students in the latter will usually have completed academic curriculums in high school. In all preemployment vocational programs, on whatever level, as many general education courses should be offered as is consistent with the occupational training goals of the programs.

Vocational education must be made available to all people who have the need, the desire, and the ability to benefit from such instruction. To achieve this objective, it is recommended that—

1. More high schools, junior colleges, and other post-high-school institutions provide training for occupational skills.
2. Training programs be developed for occupations in which training is not now provided and for which there are employment possibilities.
3. More attention be given to the education of women for employment.
4. Equal attention and equal opportunities be given to all, regardless of race, age, sex, or national origin.
5. Area schools be developed to provide curriculums for many occupations, not restricted to persons in a certain area of residence.

Education for occupational competency should be carefully correlated with the possibility of employment. To accomplish this, it is recommended that—

1. Local, State, and Federal employment service reports and predictions be made available to all schools.
2. All schools make available to State and Federal employment agencies statistics of enrollments and completions of training programs.
3. Where the size and complexity of the community justifies such an activity, the schools should take the leadership in establishing and maintaining an employment council, with representation from business, industry, labor, schools, employment service, and local government. It should conduct surveys of community employment, training, and youth population, as well as suggest policy and evaluate community activities related to training and employment.

An evaluation committee of competent authorities should report the strengths, limitations, and weaknesses of the vocational training program. To make this possible, it is recommended that—

1. Criteria be developed for the evaluation of vocational education services in a State and in a local community.
2. Records be kept of enrollments, dropouts, completions, placements, and subsequent success of students.
3. A competent person with an adequate staff be assigned the specific responsibility for the evaluation procedure in local, State, and Federal vocational education agencies.

Legislative mandate has required that vocational education be financed and administered by certain occupational categories—agriculture, trade and industry, home economics, and distributive occupations. This has been a convenient and satisfactory administrative organization. Occupational categories, however, are no longer so isolated from each other. Agriculture, for instance, is no longer based on production alone. It has become more complex. It depends upon an increased emphasis on management, finance, farm mechanization, conservation, transportation, processing, marketing the products of the farm, and similar topics.

Similar changing conditions affect the other traditional occupational categories. Neither financial limitations nor administrative restrictions should be permitted to prevent expansion of course content, combination of courses, or elimination of courses when such changes can provide a better program to serve those being trained.

The administration of vocational education must contribute to the effectiveness of the program of instruction. Administration must channel funds, audit expenditures, establish policy, require reports, and provide other services; but it must perform these functions in a manner which will encourage flexibility—make it possible to meet varying needs in different States, change programs, recognize mobility, and meet the challenge of automation.

CHAPTER 11

Recommendations for Improvement

VOCATIONAL INSTRUCTION is a responsibility of the State. Programs are operated and the services rendered by local school districts or State-approved institutions. The Federal Government assists the States because enabling citizens to develop occupational skills contributes directly to the national welfare. Increasing population mobility and industrial distribution create a greater interstate concern for occupational training.

To give more people occupational skills and to mesh training programs with employment opportunities, it will be necessary to diversify and expand training in each of the present occupational categories. As this expansion develops, there will be overlapping of categories and a need for training in additional occupations. To enable vocational education to meet these needs, a different statutory and fiscal pattern should be developed.

It is recommended that the statutory and fiscal categories of vocational education conform to the groups of people who are to be trained and to the services assisting their training:

1. *Youth in high school who are preparing to enter the labor market or to become homemakers.*—Preemployment training is normally given as a part of the regular high school program. Under the present pattern, the student spends at least half his schooltime in academic or cultural courses and in technical courses related to the occupational training, thus obtaining better basic education and preparation for citizenship.
2. *Youth with special needs.*—The needs of students with academic, socioeconomic, or other handicaps that prevent them from succeeding in the regular vocational education program are so varied that this group is separated in order that the training may be more appropriate to their ability, interests, and prior learning, and in order to avoid diluting the training given to students in regular vocational education programs. This training usually would be given as part of the high school program.

3. *Youth and adults who have completed or left high school and are spending full time in preparing to enter the labor market.*—Some of these students have completed the normal academic high school program. Some have completed a high school vocational curriculum and desire more advanced or different vocational training. Others have not completed the high school curriculum, but can demonstrate their ability to benefit by training in a post-high-school program. Some of the training programs are similar to those given in the high school; others are quite sophisticated, requiring extensive knowledge of science and mathematics.
4. *Youth and adults who are unemployed or at work, who need training or retraining to achieve employment stability.*—These young people and adults are returning to school to receive training to upgrade and update their skills, to learn new skills, or to supplement other training activities. This type of program may expand extensively to provide retraining for another occupation as a result of unemployment or in anticipation of displacement.
5. *Services required to assure quality in all vocational and technical education programs.*—The preparation of teachers, the preparation of instructional materials, research studies, occupational information, and vocational guidance all are necessary parts of effective vocational instruction. If the programs of instruction described are to achieve their objectives, these services to instruction are of vital concern.

High School Age Youth

The program of studies of the American high school represents perhaps the unique contribution of the United States to education. A school program to meet the diversified interests, aptitudes, and needs of all youth of the 15–18-year age group in a society has never been achieved to such an extent in any other country. Training for entry into the labor market is an important part of the program to meet these diversified needs.[1]

The pursuit of a vocational curriculum should permit a student to continue the achievement of basic educational skills, training for leadership, and growth as a citizen. The vocational curriculum should help the student who is not going to college to succeed in his next venture in society, just as the academic curriculum helps the student who goes to college.

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[1] For a more complete description of vocational education for high school age youth, see ch. 7, pt. II.

The skills required to obtain employment and succeed on a job are increasing in complexity. In keeping with these changes, the age and grade level at which vocational education programs are offered has been gradually rising. In the field of industrial education it was common practice at the time the Smith-Hughes Act was passed to enroll boys at the end of the sixth grade who were 15 years of age or older, give them intensive training for 2 years in a trade school, and place them in industrial jobs. Over the years the pattern has changed. The entrance into vocational training programs has risen successively to 8th-grade completion and 9th-grade completion, with many programs on the high school level starting with the 11th or even the 12th grade. Today in the United States a significant portion of the total program is found in institutions beyond the high school designed to meet the needs of graduates and out-of-school young people who desire vocational training.

The youth today without at least a high school diploma is seriously handicapped in obtaining a job. Every student should be encouraged to seek vocational guidance as early as possible and stay in school as long as he can, in order to achieve a maximum vocational competence. As entrance into the labor market is postponed, the student has the opportunity to pursue more academic and cultural subjects, and to explore the occupational fields of his choice so that his preparation for life and work is more thorough. His increased maturity is an asset in placement, and his occupational training is expedited because of his greater maturity and basic education.

Vocational education for high school youth, rural or urban, is an important part of the total educational effort. If it is well planned, it will hold students in school for longer periods, make them more productive as they enter the world of work, and give them the security and stability which contribute significantly to political, economic, and social well-being. High schools, especially small schools, cannot do all things for all students. In general, it will not be practical for any high school of less than 500 students to provide the specialized personnel to perform even minimum vocational education services. High schools with much larger enrollments will be necessary to provide a diversified vocational curriculum.

To improve and redirect vocational education in the high schools—

1. Vocational education programs should be made available to more students in secondary schools.
   a. **All high school students should have access to vocational education programs.**

   b. Programs should be developed for more occupations.
   c. Youth with special talents or with special needs should be permitted to attend schools where these talents can be adequately trained and these needs properly met.

2. Specialized vocational schools should be provided in metropolitan centers and area vocational schools in other locations to provide a diversity of occupational training programs.
3. Quality standards should be maintained in vocational education programs for high school youth.
   a. Students should be selected for specific education programs only when their aptitudes, interests, and achievements indicate they will be able to attain the required occupational skill.
   b. No person should be certified as having completed a program if his achievement does not make it possible for him to obtain and hold a job related to the educational program.
   c. Followup studies should be conducted to determine the relevance of the educational program to job placement and the ability to hold a job and advance to a better one.
   d. The course content should be developed from an analysis of the occupation for which training is to be given, subject to constant review in order to prevent obsolescence.
   e. Continuous cooperation should be maintained with industry, labor, management, and public employment services to develop job specifications and employment opportunity data.
4. Basic vocational education programs should be designed to provide education in skills and concepts common to clusters of closely related occupations. The curriculum should be derived from analyses of the common features of the occupations included. These students should receive specialized or more advanced vocational training later in post-high-school programs, apprenticeship, or on-the-job experiences.
5. Changes should be made in existing programs to bring them more nearly into accord with present day needs, as follows:
   a. Preemployment training programs should be developed for distributive occupations in addition to the present cooperative work-study programs.
   b. The term *homemaking education* should replace the current terms *vocational home economics* and *general home economics* now used to describe high-school classes.
   c. Homemaking education should develop unique and more effective service to girls in disadvantaged families in large cities.
   d. Standards should be developed to differentiate classes in business education which train for employment in office occupations from those which train for personal use of office skills, and programs that train for employment should be eligible for Federal vocational education funds.

e. Present restrictions should be changed to recognize that agriculture is no longer based on production alone and that vocational agricultural education should provide increased emphasis on management, finance, farm mechanization, conservation, transportation, processing, marketing the products of the farm, and similar topics.

f. Present specific requirements relating to hours per week and weeks per year for trade and industrial education programs should be eliminated, and the time scheduled for these programs should be determined on the basis of the needs of the occupations for which the programs are designed.

6. Particular attention should be given to developing additional training in such occupational fields as those requiring skills related to homemaking, service occupations, health occupations, and technical occupations appropriate to the high school level. Also, attention should be directed to expansion of cooperative work-study programs, especially in the smaller high schools.

Youth With Special Needs

A substantial number of students in the Nation's schools need special assistance in order to enter the labor force successfully.[2] These young people have a wide variety of needs which must be taken into account before they can enter and continue to compete successfully in the labor force. Some simply are not motivated to think about the kinds of work they will do. Others have learning difficulties; they cannot keep up with the majority of their classmates and have few opportunities to participate in something worthwhile in which they can succeed. Still others have emotional or physical handicaps which create employment problems.

No one term will suffice to describe all the students whose divergent needs are not being met satisfactorily in high school. After they pass the age of compulsory school attendance, many who would like to enter the labor force lack any salable skill and are not well informed about their own occupational interests and abilities and therefore cannot get a job. For these boys and girls, the school must often provide remedial services in writing, reading, speech, and arithmetic. In addition, the school must overcome expressed hostilities to learning and replace such behavior with favorable attitudes toward education. These young people must also be given some reasonable degree of assurance that they can, with aid, eventually join the labor force.

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[2] For a more complete discussion of vocational education for youth with special needs, see ch. 7, pt. II.

There are many students with these problems in urban centers. They are prime candidates for "street-corner standing" and juvenile delinquency. Out of school, they become the "social dynamite" of society. The term "disadvantaged youth" applies to those who come from homes lacking in the cultural advantages generally available to others. Not only is the individual's economic and social stability at stake, but also the economic, social, and political stability of large population centers.

Vocational education has a responsibility for service to these young people. However, agencies other than the public schools—social welfare agencies, juvenile courts, business, industry, employment services, and parents—must be involved in remedial programs and must accept a responsibility for their development and operation.

One requirement for such an instructional program which is often overlooked is that the teacher must be at least as good as the average teacher to be successful, and that many students who achieve in this type of program are performing a task which may be enormously more difficult than for an average or superior student to perform at his level of ability. It should also be recognized that a teacher and a school which operate such a program with success are contributing to the economic and social well-being of society.

Some schools do have services for these young people. Early in its history vocational education developed a unique program which reached many students with special needs through the "continuation school." This school provided academic classes or vocational training for employed youth. The students were often young people who dropped out of school and got jobs because they did not like school. They came back to school because most States had laws requiring that employed minors under a certain age must spend a certain amout of time in school. The continuation school has largely disappeared.

The present need is for a program beyond the scope of the continuation school. The element of urgency, however, calls for a rapid development of such a program. Experimental vocational education activities for youth with special needs should be reviewed and reported in order that other communities may benefit from these activities. Pilot and experimental projects for these students could indicate other effective ways to serve their vocational needs.

To improve and redirect vocational education to better serve youth with special needs—

1. New occupationally oriented programs of vocational education should be added to the school curriculum designed to lead to employment in jobs known to exist and to be successful educa-

tional experiences for students who cannot profit from instruction in the traditional programs.

2. Cooperative (school-work) programs should be organized wherever possible, so that the student concerned may have the advantage of school experience coordinated with employment.
3. Diversity and flexibility should be the keynote of such programs, and instruction should be highly individualized in order to assure the occupational stability of such students when they actually enter upon full-time employment.
4. Appropriate vocational guidance of practical significance should be made available to each person, and each one trained and employed should be followed up to determine the value of training provided and to secure information leading to improvement of both content and method in future courses.
5. Specially trained teachers who understand the variety of needs of disadvantaged youth and who are occupationally competent in the specialized vocational areas represented should be employed for these programs.
6. Experimental and pilot programs should be planned and conducted to develop practices to serve these students more effectively.

Education Beyond the High School

Because of advancing technology, many jobs require more technical proficiency and greater knowledge of mathematics and science. These jobs also often require more mature persons than youth of high school age. As a result, attention is increasingly focused on postsecondary vocational and technical education.[3]

Most students in these programs have completed high school and desire training for a specific occupational field; however, some who have not completed high school may also benefit from such instruction; often they form an appreciable portion of the students in post-high-school vocational and technical programs.

Post-high-school curriculums include training for a wide range of occupational fields, such as technical occupations, trades, industry, agriculture, health services, food services, distributive and office occupations. The program of instruction is more concentrated in time and content than similar programs offered in the high school. Students, if they wish, may enroll only in specialized course work having a specific job objective. Technical and vocational curriculums prepare for employment in specific occupations and/or fields of work and are not designed to lead to the baccalaureate degree. They often require 2 years of full-time study, particularly the technical curriculums.

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[3] For a more complete description of vocational education beyond the high school, see ch. 7, pt. II.

Increasingly, these programs are being offered in institutions of higher education, primarily junior colleges, community colleges, and technical institutes. A 1958 U.S. Office of Education survey in such institutions showed an enrollment of 138,391 full-time students and 90,954 students attending part-time classes in organized occupational curriculums of at least one, but less than 4 years in length.[4] Programs were offered in 434 publicly controlled institutions and in 409 under private control. Publicly controlled institutions enrolled 84,590 of the full-time students and 58,043 of the part-time students. The program included curriculums for the craftsman, the office-worker, and technicians in air conditioning and aeronautical, architectural, electrical, chemical, and mechanical fields, as well as agriculture, applied and graphic arts, business and commerce, health services, etc. More than 40 percent of the total enrollment was in business and commerce, and some 25 percent in programs in the electrical and mechanical fields.

Technical education is one of the major areas of training in post-high-school vocational programs. Government agencies have declared that the training of engineering and science technicians is critical to the economy and possibly even to national survival.[5] The Federal Government, under title VIII of the National Defense Education Act, supports many of these programs. With the support of this legislation, enrollments in training programs for highly skilled technicians have increased from 48,000 in 1959 to 148,429 in 1962.[6] Most of these programs are designed to prepare scientific or engineering technicians.

The quality of title VIII programs has in general been good and the manner in which they have developed is satisfactory in achieving the objectives of the legislation to increase the supply of highly skilled technicians. An extension of the provisions of title VIII of the

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[4] *Organized Occupational Curriculums in Higher Education, Enrollments and Graduates, 1958, op. cit.*

[5] *The Long-Range Demand for Scientific and Technical Personnel, op. cit.*, p. 44.

[6] *Progress in Title VIII Programs, Fiscal Year 1961, op. cit.;* enrollments under Title VIII, NDEA, for 1962, estimated from incomplete reports, November 1962, Technical Education Branch, Division of Vocational and Technical Education, U.S. Office of Education.

National Defense Education Act would assure the continued effective use of the equipment which has been purchased, would help the institutions which have "tooled up" for this training, and would keep open the administrative channels which have effectively promoted technician training.

Expansion of technician education under NDEA, title VIII has been hampered by the apparent jurisdictional conflict, in some States, resulting from the wording of the act, which describes this training as of "less than college grade," and the State government organization, which assigns responsibility for community and junior colleges to the State's board of higher education. As the NDEA legislation is continued or replaced by other Federal acts, the emphasis should be upon expanding the opportunities for technician education; the administrative auspices may be left to the decision of the individual States.

Occupational training beyond the high school must be a major concern of vocational education in the years ahead to keep pace with technological change. The desirability of keeping young people out of the labor market until they are older and better prepared, the critical need for technicians, the importance of more extensive shops and laboratories; these all indicate the vital importance of the education for employment of youth in the years beyond the high school.

Technical schools, junior colleges, area schools—in fact, all schools which can provide the facilities and the teachers—must do their share of this training. The facilities, the instructional know-how, and the administrative organization for vocational and technical education should be recognized as valuable assets to provide training at the post-high-school level.

To improve and redirect vocational and technical education beyond the high school—

1. Vocational and technical education should be made available to more youth and adults by—
   - *a.* Providing more vocational and technical curriculums for students who have completed or left high school and are willing and able to spend full time in improving their occupational competency.
   - *b.* Providing schools which maintain a diversified curriculum and serve individuals without restrictions as to their place of residence.
2. Technical education should be emphasized, improved, and expanded by—
   - *a.* Increasing Federal support for programs designed to prepare individuals for useful employment in technical occupations requiring scientific or technical knowledge and skills.

b. Interpreting the present wording "less than college grade" to mean courses not necessarily meeting normal college entrance requirements and not necessarily leading to a college degree, but courses whose content and level may be beyond normal requirements for high school graduation.

c. Recognizing that the State plan determines the channels for administration of funds for technician education within a State.

3. Quality standards for vocational and technical education beyond the high school should be maintained. Special attention should be given to—

a. Determining that there is a reasonable expectation of employment in the occupation for which the person is to be trained.

b. Developing course content, determining the type and amount of equipment, and providing for the flexibility inherent in the newer employment fields.

c. Placing those completing training and checking to see that their work performance is satisfactory.

Youth and Adults Unemployed or at Work

Programs of vocational education for out-of-school youth and adults[7] constituted slightly more than half the total enrollment in federally aided classes during the year 1960–61.[8] All the occupational categories of vocational education have provided such programs. Some 2 million persons are enrolled annually. These students are usually in short courses that meet specific needs for those employed in an occupation related to the instruction. The courses are usually given in the evening so they will not conflict with the working day, but they may be offered at other hours. Some classes for apprentices meet on Saturday morning, or at various hours during the week on company time. The classes are taught at some place convenient to the group where proper facilities are available, usually utilizing the facilities which serve the full-time day vocational programs.

Vocational education programs for employed youth and adults have played an important role since the first vocational education legislation was passed in 1917. In the early years much attention was given to the needs of younger workers aged 14 to 16 years. Changes in labor and school legislation have gradually eliminated most of these young workers from the labor market, and present-day attention is directed to the needs of older youth and of adults. In vocational education, as an entirety, programs for employed workers are of equal importance as compared with full-time preemployment training.

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[7] For a more complete description of vocational education for youth and adults, unemployed or at work, see ch. 7, pt. II.

[8] *Digest of Annual Reports, 1961.*

The organizational structure of vocational education in the United States can provide significant help to meet the training needs of the unemployed and the training needs resulting from occupational change. However, the Smith-Hughes Act and the George-Barden Act limit vocational education for employed workers to instruction which will update or upgrade the worker in the occupation in which he is working. This restriction prevents this phase of the program from attaining its potential in the training of disemployed workers, and employed workers who need training for new types of occupations. Removal of this restriction is desirable, but care should be taken that labor standards are safeguarded and that there is reasonable expectation for employment for those trained for new occupations.

The training given to upgrade skills and to retrain those whose jobs will disappear because of changes in mechanization, organization, or production plans of industry and business is not, and should not, all be performed in the public vocational school programs. Industry and business are operating many training programs for their employees. Research studies have indicated that such training programs are extensive, are being developed in more companies, and are expanded to include more operations within a company. One company reports that it spends $35 million a year in educational activities for its employees and its customers.[9]

The armed services also contribute to the training for employment of youth who are not in school. A study of training in the Military Establishment shows a wide range of training activities, many of which have their counterparts in civilian life.[10]

Large numbers of workers upgrade themselves through self-study and correspondence instruction. Extensive contributions are also made by private schools in providing training for employed youth and adults in the fields of business, skilled trades, technician occupations, and others.

Students in these programs are highly motivated; they attend because they want to learn. They range in age from youth who have just entered the labor market to persons who have retired from active life in business or industry and desire training for some new field in which they can work part time during their retirement years. They come from all walks of life—the farm, the home, business, industry, personal service fields, governmental service. Their occupational backgrounds cover a wide range of levels of employment, from single-skill occupations to supervisors and managers. Many courses have some enrollees with professional background who need to learn specific skills and information.

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[9] Clark and Sloan, *Classrooms in the Factories* and *Classrooms in the Stores*, *op. cit.*

[10] Clark and Sloan, *Classrooms in the Camps*, *op. cit.*

Programs may vary greatly in scope, content, and organization. They include short intensive courses designed to improve the competency of workers in their present jobs, long-range programs pursued by workers who desire preparation for advanced jobs which require attendance at evening classes over a period of several years, or full-time programs preparing disemployed workers for new jobs.

Related instruction for apprentices is a part of these programs. In the better apprentice programs this instruction is a required part of the apprenticeship agreement. It may be an organized program extending for 4 or 5 years with excellent equipment and materials, often provided by unions, employers, or manufacturers.

Some of the programs are designed to provide for manipulative skill development through shop activities. Usually they take the form of classroom or laboratory study where the objective is new knowledge and understanding, and new technical skills. Courses are usually held in the evening, but they may be scheduled at various hours to meet the needs of special groups. Sometimes the classes meet at places outside the school where appropriate facilities are available.

Some difficulties encountered are: Instructors recruited from industry sometimes lack professional teaching ability and may be reluctant to take the time to secure it; appropriate course outlines and instructional materials often are not available; scheduling problems are caused by use of equipment by both day and evening teachers.

Vocational education programs for youth and adults, unemployed or at work, have made great contributions to the economy of the Nation, in national emergencies as well as in normal times. Expanding automation with the resulting disemployment and other socioeconomic changes indicate that there is need for a careful reconsideration of these programs.

To improve vocational education for out-of-school persons—

1. Training opportunities for out-of-school youth and adults should be expanded by—
    - a. Developing programs to adjust the skills of the labor force to changing needs of the economy. This will require—
        - (1) Particular emphasis on retraining the unemployed.
        - (2) Recognition of the necessity of supporting many unemployed individuals while they are undergoing training.
        - (3) Legislation to permit employed or unemployed persons to be trained or retrained for employment to provide maximum economic security for the individual and greater productivity for the Nation.

   - b. Increasing the number of occupations for which training is provided.
   - c. Developing training centers in areas where vocational programs are not adequately available.
   - d. Providing programed learning, itinerant instructors, traveling classrooms, and/or correspondence study where classes cannot be established but the need is justified.

2. Apprenticeship programs should be expanded and improved by—
   - a. Encouraging apprenticeship training for both traditional and other occupations by labor, management, and schools.
   - b. Requiring well-organized related instruction for all apprenticeships.
   - c. Maintaining updated instruction materials and equipment.
   - d. Using the joint apprenticeship committees, representing management and labor, to work with the schools to develop educational policy, approve related instruction and course content, and to evaluate these programs.
3. General education and vocational education leadership should be alerted to the importance of providing vocational education opportunities for employed and unemployed workers.

Services to Instructional Programs

Thus far, consideration has been confined to the instructional programs that serve specified groups of people. These programs provide people with skills which enable them to get and hold a job. They are successful if they achieve this objective. They are, in general, unsuccessful if they do not help people in this manner.

Because instructional programs are complex—preparing many people for many occupations in many States—certain services are necessary to make the programs of instruction more effective and more efficient. Major services to instruction are: Teacher training; development of instructional materials; occupational information and vocational guidance; research; youth groups; and administration and leadership. These services are of value only to the extent that they assist the teaching-learning process.

The Vocational Teacher

The importance of the teacher to the teaching-learning process is so generally understood that it is not necessary to justify interest in the teacher.[11] It is also quite generally accepted that a teacher must be proficient in the skill and subject matter he teaches, as well as in the process and methods of teaching. The academic teacher has a uniform and well-developed procedure for attaining proficiency. The college program of liberal education with major subject emphasis develops a proficiency in the subject matter desired. Other programs of instruction summarize the knowledge which good teachers have gained through the ages concerning the learning process. Effective teaching techniques have been developed so that each new teacher does not have to learn these skills by the "trial and error" process.

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[11] For a more complete description of teacher training, see ch. 8, pt. II.

A process somewhat similar to the normal academic process trains teachers in many of the occupational areas for vocational teaching. For instance, the teacher of vocational agriculture usually has lived on a farm, has studied vocational agriculture in high school and then has continued to learn more about the economics and science of agriculture in college. He has also studied the teaching-learning process, particularly as it applies to teaching agriculture to high school youth. The teacher of distributive occupations follows somewhat the same procedure; at some period he has obtained several years experience as a worker in distribution.

Teachers of many of the trade and industrial occupations follow a different path. For example, the bricklayer often has learned the skills of laying brick on the job quite removed from academic practices. Although he knows the occupational skill, he has not normally had the opportunity to learn to teach either by instruction from another, by observing a teacher, or by his personal experience in trying to teach. He may not have the liberal education which is so important to the teacher. It is, however, much more effective to [illegible] teacher and then train him to be a bricklayer. This is illustrative of the problems of training teachers for many vocational subjects.

The preemployment and inservice training of teachers with this background is quite different among the States. A common practice is to require a course which is the equivalent of a six-unit college course prior to employment or concurrent with initial employment. This is followed by similar requirements for the following 2 or 3 years. This minimum instruction is largely in teaching technique. It is often provided by an itinerant teacher-trainer from the State department or an institution of higher education within the State which has been approved to give this service. Such teachers are urged to continue their education toward a college degree. This becomes a difficult problem because persons with enough trade experience to have these skills are usually older persons with family responsibilities.

Colleges and universities have the responsibility to provide this training, but when these persons have not traveled the normal academic path, it is difficult for institutions of higher learning to meet their needs. Great opportunities for service are available to institutions which can be flexible enough to meet the needs for this teacher training. The need will become greater as vocational and technical education expands in high schools, junior colleges, and other institutions.

Salary is also a major factor in the recruitment of teachers. The tradesman's salary is often considerably higher than a teacher's salary. The person to be employed is usually a superior worker with extensive experience and very valuable to his organization. The requirement to continue in school often creates an additional expense.

To improve the selection, training, and retention of teachers, it is recommended—

1. That vocational teachers be selected with the following qualities:
    - *a.* Competence in the occupation which they will teach.
    - *b.* Evidence of ability to influence the learner to be a skilled worker and a good citizen.
    - *c.* Evidence of ability to teach or the willingness to complete a program to make them proficient as teachers.
2. That the inservice growth of vocational teachers be provided for by—
    - *a.* Continuing the teacher training and supervisory activities of State departments of vocational education.
    - *b.* Expanding the vocational teacher training activities in higher education institutions of the States.
    - *c.* Providing for regular seminars and improvement workshops for vocational teachers.
    - *d.* Requiring that teachers maintain and upgrade their occupational skills.
3. That salary schedules for vocational education teachers be high enough and flexible enough to meet the salary conditions of the occupations from which these persons must be selected.
4. That the State board for vocational education through the vocational divisions of the State departments evaluate the selection, training, supervision, and inservice growth of teachers in order to maintain a satisfactory standard of excellence.
5. That institutions of higher education, especially the land-grant college or State university and the vocational divisions of the State department of education, accept responsibility to train persons for vocational and technical teaching.

Curriculum and Instructional Materials

Probably nothing is as helpful to the teacher as good instructional materials.[12] In most academic subjects, the demand is so great and the needs so standardized that individual writers and commercial publishers can develop, print, and distribute adequate instruction materials. For many vocational subjects this is not true. The development of the materials is often far beyond the ability, available time, or motivation of the teacher. Vocational education texts are usually of little interest to a publisher, who must be able to produce and distribute in large quantities.

Appropriate and adequate instructional materials serve many purposes. They explain principles and other content difficult to portray orally. They contribute to the individual growth of students, taking care of students who have different tasks although in the same group. In shop or laboratory, all cannot work on identical tasks at the same time because of limited availability of equipment. They help the teacher in his planning and his demonstrations, and free his time for working with students. They constitute one of the most economical ways for improving instruction, for their cost is small compared with instructor salaries.

Instructional materials take many forms, which are represented in part by the following:

Text and reference books.
Procedure manuals, operation sheets, job sheets, technical assignment sheets, laboratory manuals.
Study guides, tests, final examinations, answer books.
Instructor guides, training aids guides.
Audiovisual aids, films, filmstrips, charts, tape recordings, transparencies.
Three-dimensional demonstration aids, models, mockups, cutaways.

Text and reference books that are well planned, well illustrated, and up to date are essential in all fields. Manuals of operation sheets and job sheets are useful in the shop; technical assignment sheets find an important place in related study in mathematics and science related to the shop processes. Laboratory manuals save time for the instructor in making assignments, and for the student in outlining his laboratory work. Study guides are especially useful in cooperative programs where one instructor handles students working in varied occupational fields. Tests which accompany study guides, and test answers save the instructor much routine work. Audiovisual aids help materially in classroom demonstrations.

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[12] For a more complete discussion of instructional materials, see ch. 8, pt. II.

Emphasis upon the production and distribution of instructional materials must be tremendously increased. Such instructional materials can probably be most effectively and efficiently produced in centers established for this purpose. Such instructional material laboratories should be limited to a few centers large enough to justify adequate staffing, equipment, and resources to make the production and distribution of these materials reasonable in cost. The materials produced should be available to publishers for production and distribution.

The activities of these centers should be coordinated to avoid duplication of effort and to provide for an efficient exchange of production practices. There would continue to be a need for instructional materials in small quantities for special local needs. The production of such materials locally could be aided by practices which have been standardized and made available from such centralized instructional material centers. This would be a major task, probably requiring several centers with sufficient staff and equipment to produce a number of documents in large quantities each year.

Instructional supplies, tools, instruments, and equipment become most important aids to instruction in many vocational courses. A major weakness in vocational instruction is the lack of these materials, their insufficient supply, or the obsolescence of what is available. Proper instruction cannot be given unless these materials are available to the student and the teacher in sufficient quantity and of appropriate quality.

Instructional material which outlines the course and provides the curriculum content must recognize the supplies, instruments, tools, and equipment which are necessary. These materials must then be an integral part of each course.

It is recommended that the production of instructional materials for vocational courses be recognized as vital to an effective national program and that—

1. One or more instructional material laboratories be established to produce and distribute vocational instructional materials.
   a. Programed learning aids, visual aids, and newer methods of the presentation and use of materials should be considered in the production of instruction materials.
   b. All materials developed should be made available to private publishers for maximum distribution.
2. It be a responsibility of the U.S. Office of Education through the Division of Vocational and Technical Education to—
   a. Establish and administer instructional materials laboratories through contractual arrangements with a State department of education, a college, a university, or a large school district.

b. Develop policies for the operation, coordination between centers, production of materials, and distribution of the materials produced in these centers.

c. Finance the operation of these centers.

3. An adequate quantity and an appropriate quality of instructional supplies, tools, instruments, and equipment be recognized as essential to good instruction. Standards of evaluation should consider the quantity and quality of supplies, tools, instruments, and equipment available.

Occupational Information and Guidance

Guidance and counseling services are concerned primarily with the need of the individual student to clarify his self-concept in relation to society—the school, the community, and the world of work.[13] To be effective, any educational program, including vocational education, should be accompanied by a fully adequate program of guidance services. Such guidance services should begin early and should be continuously available to students from elementary school through high school. Such services should be available to out-of-school youth and adults, as well as to those enrolled in post-high-school educational programs, and should be closely coordinated with their counterparts in community agencies and organizations providing training, placement, and counseling services to young workers and adults.

Certain basic professional counseling services should be provided in every school that maintains a program of vocational instruction. Enough counselors should be provided; they should have sufficient training and time to permit careful work with each student and with his parents and teachers regarding his learning experiences, his current and future educational program, and his career development. They should be able to give teachers information about students and interpret the information.

Counselors should be expected to follow up all students as they leave school and enter employment to determine how their schooling was of assistance. This information should be used to keep the school apprised of apparent weaknesses in the instructional program which become evident.

Counselors should have sufficient training to permit them to work with students on the development of appropriate attitudes and values, since these control the way in which a student approaches his work.

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[13] For a more complete discussion of occupational information and vocational guidance, see ch. 8, pt. II.

This may frequently involve working with parents and also making referrals to others for specialized service. They should be expected to have current knowledge of the job requirements and opportunities available to young workers. A major weakness of counseling services can often be credited to the lack of any meaningful work experience on the part of many counselors. In an urban center, this is a complex task, and to accomplish it the resources of many other agencies within the community in addition to the schools must be utilized.

To make these professional counseling services available, it is recommended—

1. That counseling services be made more effective by—
    - *a.* Providing counseling services in school programs prior to age levels in which vocational training is offered.
    - *b.* Providing professionally trained counselors who have had meaningful work experience in sufficient numbers to offer individual services to all students.
    - *c.* Recognizing that certain groups of students need special counseling services—potential dropouts, minority groups, migrants.
    - *d.* Maintaining adequate counseling facilities and sufficient occupational information.
    - *e.* Developing industrial arts programs or exploratory experiences in selected vocational shops for students before it is necessary for them to make a choice of a vocational course.
2. That counselor training programs provide—
    - *a.* Specific training for vocational counseling.
    - *b.* Requirements of work experience for counselors.
3. That the importance of counseling services by public employment agencies and voluntary community agencies be recognized and correlated with counseling in vocational schools.
4. That an adequate staff to provide consultative service on occupational information and vocational guidance be maintained—
    - *a.* In the U.S. Office of Education.
    - *b.* In State departments of education.
    - *c.* These staffs to (1) develop, secure, and distribute occupational information; (2) to provide consultative services concerning the vocational aspect of guidance; and (3) to give leadership to the promotion of better vocational guidance and counseling.
5. That the *Occupational Outlook* material prepared by the U.S. Department of Labor be fully utilized in all phases of vocational counseling.

Evaluation, Reporting, Research, and Development

A study of vocational education is severely handicapped by inadequate statistical reporting and lack of sufficient evidence to make an adequate evaluation of its methods or achievements. Evidence is lacking as to the number of youth who graduate from programs of vocational education. Information is generally not available concerning the number of vocational students who get jobs, and even less information is available regarding their success after employment.[14]

Very little research evidence or organized body of knowledge of the activities in vocational education is available to justify many of the practices in instruction or supervision.

Each year all agencies having a responsibility for vocational education should apply criteria which have been developed to measure the effectiveness of their vocational and technical education. The public and other interested parties should be involved in such evaluation procedures. The results of evaluation practices should be available to the State and the Federal Government.

The task of vocational education will be more important in the years ahead. Every effort should be made to develop methods or accept changes to improve this educational service. To improve vocational education services, it is recommended that—

1. The States and the Federal Government develop an adequate and standardized system of reporting.
   - *a.* Information should be readily available to indicate enrollments by age, sex, year in school, year in training, occupation for which training is given, completions, placement by occupation, type of school, size of school, size of community, etc.
   - *b.* Financial reports should make it possible to determine unit costs, source of funds, and classification of expenditures.
   - *c.* Similar information should be available concerning teachers, supervision, instructional materials, and any research or experimental projects.
2. Extensive research and program development be performed where adequate facilities and research personnel are located or can be assembled. Such centers would usually be located at universities. Developmental projects will more often be located in local school districts. These activities can only be performed where persons are knowledgeable concerning re-

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[14] For a more complete discussion of evaluation, reporting, and research, see ch. 8, pt. II.

search methods and have facilities for proper control and evaluation of the activities under study.

3. Research be encouraged, initiated, and coordinated at the national level. The results of research and development should be made available on a nationwide basis. An effort should be made to prevent duplication or extensive overlapping of research efforts.
4. The local school district, the State, and the Federal Government each maintain a plan for evaluation.

Leadership and Administration

A skilled teacher in the classroom is vital to good vocational education. But of equal importance is leadership which will create and maintain an environment in which the teacher has the facilities, students, professional respect, and security to perform effectively.[15]

As vocational education is expanded to provide adequate services for the national economy and social well-being, the importance of sound administration and effective leadership is apparent. Leadership may appear spontaneously or it may result from normal program operation. An effort should be made to detect potential leaders and provide training experiences for those who are selected. In the past too little effort has been given to the detection, selection, and training for leadership in vocational education.

Leadership in schools cannot, and should not, be expected to take full and final responsibility for all the community's problems in the development, use, and conservation of its manpower resources. This requires a planning body composed of representatives from groups in the community with responsibility in this field.

Schools should take the leadership in the organization of a planning body in cooperation with the city government, labor, management, and other representatives of the public interest in education, training, guidance, and placement of young workers and adults. It is recommended that—

1. An adequate staff for the administration and supervision of vocational education be maintained at the local, State, and Federal levels of operation.

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[15] For a more complete discussion of leadership and administration, see ch. 8, pt. II.

2. The Federal Government cooperate with State governments to develop programs for the selection and training of administrative and supervisory staffs.
3. That the general school administrator—the superintendent and secondary school principal—be involved in training for leadership responsibility for vocational education.
4. That positions of leadership in vocational education at the local, State, and Federal levels provide responsibility, authority, and salary sufficient to recruit and hold the best qualified persons in these positions.

Part IV

Role of the Federal Government

A lawgiver should direct his attention
above all to the education of youth.
—Aristotle

CHAPTER 12

Organization and Administration

EDUCATION historically has been a primary responsibility of the States. But education which increases the productive capacity of the Nation and provides a stable socioeconomic environment is important to the Nation as a whole. The national welfare is then so involved that the Federal Government must define its role and determine its participation. The Federal Government outlined its role in higher education and training for leadership in agriculture and mechanical arts in the Morrill Act of 1862. It again defined a role in education when in 1917 it passed the Smith-Hughes Act to subsidize vocational education for high school youth and adults at work. Its role in vocational education has been reevaluated and stated in several enactments since the initial legislation of 1917.

Population is more mobile today. Today's labor market requires more people, and these people must in general possess more complex skills. Unemployment of youth and adults is very serious to the individual and his family. As this unemployment affects the national productivity and economic stability, it becomes of great concern to the Federal Government. These factors make it timely to reevaluate the Federal role in vocational and technical education.

The recent report of a President's Commission on National Goals stated:

> A higher proportion of the gross national product must be devoted to educational purposes. This is at once an investment in the individual, in the democratic process, in the growth of the economy, and in the stature of the United States.[1]
>
> Where reemployment within the industry is not possible, retraining must be carried out through vocational programs managed locally and financed through state and federal funds.[2]

The President recognized these conditions as he asked for a panel to review and evaluate vocational education, and make recommendations to improve and redirect the Federal role in this educational activity.

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[1] *Goals for Americans, op. cit.*, p. 6.

[2] *Ibid.*, p. 11.

The Federal Government should accept a major role in providing training for occupational competency. The need for vocational and technical education is national in scope, and its alleviation contributes to the national economy, to national security and well-being.

The scope and magnitude of the program to be effective for the Nation as a whole cannot be adequately financed by State and local school districts. Maximum effectiveness and efficiency are achieved when the local school district, the State, and the Federal Government jointly finance these programs. Therefore—

1. The Federal Government should assume a significant role in the support of educational programs to prepare youth and adults for employment. This support must be continuous, consistent, and flexible enough to meet the varying needs in States and to serve national needs.
2. New Federal legislation should be enacted to—
   - *a.* Make substantial support available to States to expand and make vocational and technical education serve the people more effectively.
   - *b.* Make it possible for vocational education programs to conform to the recommendations made in part III and part IV of this report.

Evaluation

Annual and periodic reports should be made by all States and all local school districts to furnish information which makes it possible to determine the extent of these programs and the ways in which they are serving their communities and the Nation. This information should be tabulated with related educational and population data to permit satisfactory analysis of these programs.

This report recommends an extension of vocational education to more people, in more locations, and in more occupations. This expansion cannot be done efficiently without considerable research and development. Pilot projects, experimental programs, basic and applied research, and analyses of operating programs should be extensively developed in order to provide the bases for improving these services. More and better information will be necessary to evaluate the progress of these changing programs.

Modern data-processing methods should be used in order to provide complete and up-to-date information. Information should be available by January for the school year ending the previous June. These data should include enrollments, completions, placements, and expenditures, and should be related to age, sex, type of school, size of school, type of training, occupational goal, length of training program, and other pertinent facts. Information should be available by administrative categories and the services to instruction and administration. Such information, which is now largely lacking, would permit annual evaluation of the services of vocational education to our Nation. It would also make it possible to perform research studies and pilot projects to improve and expand these educational services.

Many recent achievements of industry can be largely attributed to the efforts which have been made in research and development. Relatively little has been done in research and development in vocational education; it could be the basis for improving the effective operation and use of vocational education services.

To make the role of the Federal Government in vocational and technical education more effective, it is recommended that—

1. A statistical reporting system be developed to provide current data concerning the various training programs. These data should indicate the people being served, the effective use of the skills developed, and the need for continuing programs and developing new programs.
2. The Federal Government assist the States in developing criteria to evaluate programs supported by Federal funds.
3. A national committee be convened at least every 5 years to review and evaluate the services of vocational education to the Nation and its people. This committee should consist of not more than 15 persons who have been appointed to represent Federal departments, educational leaders, labor, management, and the public.
4. A special report be made to Congress each year by the U.S. Office of Education to indicate the activities, achievements, and limitations of the vocational training supported by Federal funds authorized by Congress.

Administration

Educational administration must provide the environment in which instruction can operate efficiently and effectively. It must solve the operating problems and provide leadership. Educational administration at the Federal level is very complex and requires personnel with the highest caliber of training, experience, intelligence, and integrity. The laws involved, the relationships necessary, and the financial responsibility make these administrative positions very complex and demanding. Activities require extensive contacts with school administrators in all States and with top officials in many Federal departments and agencies.

The Smith-Hughes Act of 1917 established a Federal Board for Vocational Education. This Board was an independent Federal agency and reported directly to the President. The Board consisted of three members of the President's Cabinet (Secretaries of Departments of Agriculture, Labor, and Commerce), the U.S. Commissioner of Education, and three lay members appointed by the President with the advice and consent of the Senate. Its executive was the Director for Vocational Education.

In 1933 the Federal Board for Vocational Education was made an advisory board and the Director was made an Assistant Commissioner for Vocational Education who reported to the Commissioner of Education, an official of the Department of the Interior.

At present, the administrative head of the Division of Vocational and Technical Education of the Office of Education is an Assistant Commissioner who reports to an Associate Commissioner who, in turn, reports to the Commissioner of Education. When the top administrative staff of the U.S. Office of Education meets, there is no one present from the Division of Vocational and Technical Education. With the Office of Education headed by a Commissioner who ranks below the rank of an Assistant Secretary, and with the Assistant Commissioner for Vocational and Technical Education having the smallest division in the Office of Education and not reporting directly to the Commissioner, it is doubtful if the Division of Vocational and Technical Education has sufficient authority to effectively and efficiently perform the tasks which an expanded program of vocational education must perform for the Nation's political, economic, and social well-being.

The Federal-State relationship is an important factor in the joint operation of vocational education. A unique method or device for defining this relationship was specified by the Smith-Hughes Act. It is called the State plan. The State develops a plan for operating a program of vocational education. This State plan specifies the standards to be maintained, the methods of operation, and the relationships involved. If these relationships, operating plans, and standards conform to the relevant Federal statutes, the State plan becomes an operating contract between the State and the Federal

Government. The State may change its plan for vocational education at any time; it is subsequently reviewed to see if it conforms to Federal law. If it does, it becomes the new operating contract. This process has proved very satisfactory in providing for varying needs of different States.

The U.S. Office of Education through the Division of Vocational and Technical Education has provided specialized consultative services to the States. These services are requested by the States and they have been a means of improving instructional services. The consultative services have usually been provided in the occupational categories which also are used as the basis for an administrative framework. These consultative services should continue, but should not be restricted by the administrative pattern.

A different financial-administrative pattern has been suggested in previous parts of this report. These categories are related to large groupings of youth and adults. They are also quite often the administrative pattern for schools within a State.

It is recommended that a single agency in the Federal Government perform the following functions in vocational and technical education.

1. Be responsible for the administration and supervision of the Federal vocational education acts and/or portions of Federal acts related to vocational and technical education in the schools of the Nation.
   - *a.* The division within the U.S. Office of Education to perform these functions should be headed by a well-trained, experienced, and capable vocational educator who should report directly to the Commissioner of Education.
   - *b.* Professional competence should be the prevailing policy for leadership personnel in this Federal agency, with salaries, authority, and responsibility sufficient to justify employment and retention of the most capable personnel.
2. Be responsible for liaison and coordination with Federal agencies and other organizations and their activities as they are related to the vocational and technical education program.

It is recommended that the State plan be continued as the means of defining the working relationship between the Federal Government and the State in the operation of vocational education.

1. The State should designate the administrative channels and the State agencies to be involved in the administration of State programs of vocational and technical education.

2. The agencies to be involved in vocational and technical education in a State should be consulted in the development of the State plan.

It is recommended that the State be considered the regional agency for the operation and administration of vocational and technical education, and that the services of the Federal agency be concentrated at the Washington office of the U.S. Office of Education.

Many of the services of the Federal office are highly specialized. If these services were to be dispersed into regional offices, they would not be equally available and the clearinghouse function would be much more difficult.

CHAPTER 13

Financial Support

THE RAPID GROWTH in population provides more people at a time when the economy and society provide relatively fewer opportunities for employment except for those with extensive skills. It appears that the only solution is to offer the opportunity through education to achieve these more advanced skills to those endowed with the ability or desire for them. Those who have the aptitudes should achieve these advanced skill levels thus permitting our economy to provide employment opportunities for those who do not have these aptitudes. It becomes therefore, very important to fully finance an extensive program (*a*) to upgrade and update skills, (*b*) to provide preemployment training for many degrees of skills, and (*c*) to match aptitudes and training, skill achievement and employment.

These problems know no State boundaries and are not restricted to any one phase of the economy. They represent a national problem; they demand a national solution. No local school district can effectively and efficiently operate an education program to meet the needs of its people without considerable help from other sources. Many local school districts and the States of which they are a part provide considerable training for persons who are not essentially their citizens and many who do not remain their citizens. The problem is national in scope and requires action by the Federal Government, but it is desirable to continue to maintain a vocational and technical program developed and operated jointly by the local, State, and Federal Governments.

It is recommended that the Federal Government provide financial support for vocational and technical education under the following five categories:

I. High school age youth.
II. Youth with special needs.
III. Post-high-school youth and adults.
IV. Out-of-school youth and adults.
V. Services for vocational and technical education.

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I. High School Age Youth

The Federal Government now helps the States to train for employment about 750,000 high school youth and about 900,000 high school girls preparing to become homemakers. The Federal Government now pays about 20 percent of the direct operating cost of this vocational program. The local school district, in addition to the direct operating cost, furnishes the buildings, the equipment, and the administrative overhead.

In addition to this federally assisted program, the States and the local school districts often maintain other vocational training programs. Most notably, most high schools operate programs of training for employment in office occupations. The total high school enrollment in training for office occupations cannot be determined with accuracy from existing data, but it is probably twice as large as the enrollment of all the other high school programs combined which train for employment.

It is estimated that the high school vocational enrollment in the school year 1963-64 would be at least:

Present occupational categories, training for payroll jobs	1,250,000
Training for homemaking	1,000,000
Training for office occupations	1,750,000
Total	4,000,000

These numbers will increase considerably as high school enrollments increase and as more effective programs reduce the present dropout rate.

Accurate figures are not available for unit costs and certainly would vary for location of training, type of training, and length of training program. However, it is believed that a conservative average unit operating cost for the one-half day these young people are involved in the vocational phase of the curriculum would be at least $200 per student per year. (This estimate would not include building facilities.) The Federal Government now provides less than $15 per student per year of this cost. The Federal Government must provide a larger share of the cost if vocational education is to adequately serve the Nation.

It is recommended that the Federal Government provide funds for the support of vocational education for high school age youth.

1. Funds should be allocated to States on a population basis and the population ages used for allocation purposes should

correspond to the ages of youth to be served. A factor of need of a State should be a feature of the formula for distribution, to provide additional amounts to States whose per capita income is below the national per capita income average.

2. Federal funds should be matched by State and/or local funds. It should not be necessary for States to match the Federal funds for the first 2 years, provided that the State does not decrease its funds devoted to vocational education during the 2-year period.
3. These funds should be available for administration, supervision, operation, and the purchase and maintenance of equipment for vocational education.

It is believed that a reasonable share for the Federal Government would be at least $50 per student per year. This would indicate that the Federal Government's contribution, as it reevaluated its role in vocational education for high school youth, would be approximately $200 million for the first year.

II. Youth With Special Needs

Seven and one-half million young people will drop out of school before they graduate from high school during the 1960's. They will be seriously handicapped in obtaining employment. Some of them are members of migrant families; some are members of minority groups—Negroes, Puerto Ricans, Mexican-Americans; some have very little mechanical or academic aptitude; some are from home conditions which do not encourage school attendance; and some have combinations of these or other physical, mental, or social handicaps which make it difficult for them to stay in school. These potential dropouts have special needs and must be given special opportunities if they are to succeed.

Schools have not been kind to these young people. Since they do not conform to the normal youth patterns in school, their needs are not served effectively by the normal school program. They are recognized as problem cases and they do not fit in a mass production educational system. Studies indicate that some members of this group can and do, in fact, become criminals of various types. Other studies indicate that many of those who do not become delinquents or criminals may not be efficient producers in society.

Vocational education is doing very little for these students and cannot be expected to solve all their problems. Vocational education, however, can do something for youth with special needs. Additional research, experimentation, and pilot projects will have to be initiated before this service will be very significant. Service to these students cannot be bound by the standards which are desirable for quality programs of vocational education for other youth and adults.

It is recommended that Federal funds be made available to assist States in developing and operating vocational programs for youth with special needs.

1. The criteria for the use of these funds should be that they train for employment. Quality standards that are necessary and desirable for normal vocational programs should not necessarily be followed in this program.
2. These funds should be allocated to States on the same basis of distribution as funds for the normal high school vocational programs.
3. These funds should be matched by State and/or local school district funds in the ratio of two parts Federal funds to one part State and/or local school district funds.
4. These funds should be available for administration, supervision, operation, and the purchase and maintenance of equipment for vocational education.
5. For a 3-year period, funds for this purpose should be made available to States for experimental or pilot projects which will be completely supported by Federal funds. Funds for these projects should be allocated on the basis of a planned program evaluated by the Federal vocational education agency on the basis of its possible effectiveness, its importance in relation to need of development in the activity suggested, and its potential usefulness in other States.

It is difficult to estimate the amount of funds necessary to begin this type of program. The importance of this activity, however, justifies promotion with speed. It is believed that $10 million should be made available immediately. A large portion of this initial allocation would be used for developmental projects. The amount would be expected to grow as the program developed and as an evaluation would justify an increase.

III. Post-High-School Youth and Adults

One of the most obvious deductions from any analysis of manpower needs is the urgency of the need for people with more extensive skills and greater theoretical knowledge. These skills and this knowledge can usually be acquired only by rather mature and better educated persons. The junior college and technical institute enrolling older youth and experienced persons have proven particularly effective in giving this type of training. Youth of this age, training, and experience are more flexible in adapting to newer processes in business and industry. This training should be expanded rapidly and extensively enough to meet the needs for technicians to amplify the services of scientists and engineers. Training large numbers of youth for such work would leave fewer unemployed in the labor market.

Many more post-high-school training centers should be established. Preferably these centers should be area schools, accepting trainees regardless of their place of residence.

It is recommended that the Federal Government provide funds to assist States in developing and operating vocational and technical education programs at the post-high-school level.

1. Funds should be made available to expand this training for many more occupations and into many more areas. These funds should be allocated to States on a population ratio, the population ages used for allocation purposes corresponding to the major age group to be served. A factor of the need of the State should be a feature of the allocation formula, to provide additional amounts to States whose per capita income is below the national per capita average income.
2. The Federal funds should be matched by State and/or local funds. It should not be necessary for States to match the Federal funds for the first 2 years, provided that the State does not decrease its funds devoted to vocational education during this 2-year period.
3. These funds should be available for administration, supervision, operation, the purchase and maintenance of equipment, and the construction and alteration of buildings for vocational education.
4. If the proper Federal agency or agencies declare a specific occupation to be a critical national need, such training should be supported 100 percent by Federal funds, with such funds provided by Congress after its appraisal of the evidence of the critical need.

There are probably 350,000 persons now training for employment in some post-high-school training program. This enrollment is expanding and would expand more rapidly with the availability of additional funds. Such training is more expensive than training at the high school level. The Federal Government should provide $50 million for these programs immediately, these funds to be increased later if an evaluation of the program justifies such action.

IV. Out-of-School Youth and Adults

A large part of the federally reimbursed vocational program has always served out-of-school youth and adults. In the school year 1960–61, 52 percent of the enrollment was in this part of the program, a percentage that has been stable for many years. In the 1960–61 school year, 68 percent of the trade and industrial enrollment and over 80 percent of the distributive education enrollment was out-of-school youth and adults. These large percentages were reached even though the present legislation tends to limit such training to upgrading employment skills and does not permit preemployment training.

The Area Redevelopment Act of 1961 and the Manpower Development and Training Act of 1962 provide for retraining and preemployment training for unemployed persons or those who will be displaced. The effects of these more recent acts cannot as yet be determined. They have fewer operating restrictions than the older acts.

The trainees in these programs are mature people with a current attachment to the labor market. They are adults or older youth, either working or seeking employment at once. Upgrading their skills and making them employable produces an economic and social impact more immediate and significant than the training of students of high school age. The need for retraining those who are released from employment by industrial, business, or agricultural change makes this type of training of great concern to our Nation as a whole.

It is recommended that the Federal Government continue to assist States in providing vocational and technician training to out-of-school youth and adults.

1. Funds should continue to be allocated to States on the basis of population with the population ages used for allocation purposes corresponding to the ages of persons to be served. A factor of need of a State should be a feature of the formula for distribution, to provide additional amounts to States whose per capita income is below the national average per capita income.
2. The Federal funds should be matched by State and/or local funds. It should not be necessary for States to match the Federal funds for the first 2 years, provided that the State

does not decrease its funds devoted to this phase of vocational education during this 2-year period.

3. These funds should be available for the administration, supervision, operation, and the purchase and maintenance of equipment of vocational education.
4. If the proper Federal agency or agencies declare a State, a part of a State, or a group of States to have a critical unemployment condition which could benefit from special training programs, such training should be fully supported by Federal funds. Such training should be given in cooperation with other Federal agencies.

Before enactment of the Area Redevelopment Act and the Manpower Development and Training Act, there were about 2 million persons, out of school and at work, enrolled in vocational education courses. The recent training acts will increase this number appreciably. The Federal Government should provide $100 million as its part of this training. Some of this total is now being provided under the Area Redevelopment Act and the Manpower Development and Training Act allocations.

V. Services for Vocational and Technical Education

Certain services and facilities are essential to establish and operate effective programs of vocational education. They have been considered in other parts of this report. Many of these services could be performed more effectively and at less cost if they were performed in relatively few centers with highly qualified personnel. Such services would then be available to all States and all local school districts operating vocational education programs. These services, which are necessary in all States and should not be restricted only to selected locations, are those which contribute to—

1. The selection, training, and inservice growth of teachers.
2. The administration, supervision, and evaluation of vocational education programs.
3. The preparation and distribution of instructional materials.
4. The collection, preparation, and distribution of occupational information.
5. The provision of consultative services for vocational guidance.
6. Research and development for more effective vocational education programs.

The Federal Government should continue to assist States in providing services to make vocational education more effective. To improve these services, it is recommended that—

1. Federal funds be made available to assist States in the selection, training, and inservice growth of vocational and technical education teachers.
    - *a.* These funds should be allocated to States on the basis of the number of persons enrolled in vocational education in the State in proportion to the total enrollment in the United States.
    - *b.* Federal funds should be matched dollar for dollar by local and/or State funds.
2. Federal funds be made available to develop, prepare, and distribute instructional materials for vocational and technical instruction.
    - *a.* These funds should wholly support the establishment and operation of certain selected centers to provide these services.
    - *b.* The materials developed should be made available to all States providing instruction related to these materials.
    - *c.* These funds should be available to States preparing instructional materials unique to their State, if equally matched by State and/or local funds.
3. Federal funds be made available to collect, develop, prepare, and distribute occupational information materials.
    - *a.* These funds should wholly support the establishment and operation of one or more centers to perform these services on a national scope for all States.
    - *b.* These materials should be made available to all States.
    - *c.* These funds should be available to States preparing such materials which are unique to a State, if fully matched by State and/or local funds.
4. Federal funds be made available to provide consultative services for vocational guidance in the U.S. Office of Education and in the agency responsible for vocational education in each State.
    - *a.* These funds should be allocated to States on the basis of the enrollment in vocational education within a State to the total enrollment in the United States.
    - *b.* These funds should be fully matched by local and/or State funds on a 1-to-1 ratio.
5. Federal funds be made available to establish and operate selected centers to perform research, develop pilot projects,

and encourage experimental activities to improve vocational and technical education programs.

- *a.* These funds should wholly support these centers performing services of value to the national program.
- *b.* The results of these activities should be made available to all States.
- *c.* These funds should be available to individual States with research or developmental needs unique to their State, if fully matched by State and/or local funds.

6. Federal funds be made available to provide for the administration, supervision, and evaluation of vocational and technical education at the Federal level. The administration of the Federal legislation, the provision for specialized consultative services, and the leadership function at the Federal level require a staff of professional and clerical personnel well trained and with experience in specialized fields. The budget for these activities should provide a salary schedule sufficiently high to attract and hold qualified personnel.

It is estimated that these recommendations will require at least $40 million annually from the Federal Government to provide assistance to the States and to provide these services at the Federal level. The funds should be increased as the program expands and if an evaluation of the services would justify increases.

Conclusion

This study has reviewed and evaluated vocational education programs and made recommendations to improve and redirect these services to our people and our Nation.

We have examined vocational education against the backdrop of mobility, urbanization, technological advance, and the population explosion of the 1950's and 1960's. We conclude, as Margaret Mead has observed:

> The most vivid truth of our age is that no one will live all his life in the world into which he was born, and no one will die in the world in which he worked in his maturity.

These conditions, which are without precedent in their intensity, produce very difficult social and economic problems and present a challenge to our ingenuity, intelligence, and statesmanship.

Only a rising general educational level and an increasing skill competence of individuals will provide the power to meet this challenge. Education, which raises our personal and national levels of living and enhances our position of leadership in the world, is thus the key to the future.

Americans hold that the manifold tasks of the world of work are all equally important and that the man dignifies the job, not the reverse. We believe that, in a democracy, everyone should have access throughout life to the education and training needed to develop to his highest potential. Education is a continuous process, not an injection that thereafter makes the individual immune to ignorance and the need for knowledge.

General education—language and arithmetic skill, plus basic knowledge of the world about us—itself contributes indispensably to occupational competence. Vocational education and general education are complementary and equally important to individual occupational competence.

The Panel concludes that expanded vocational education, apprenticeship, and technical training are especially needed now to prepare both new workers and the unemployed to fill the job openings available for skilled or specialized workers. These education programs should be administered with flexibility in order to adjust to the rapidly changing technology and to the varied social and economic needs of individuals.

Stimulus and support of vocational and technical education must continue to be an important responsibility of the Federal Government so that educational opportunities may be equalized throughout the Nation, and so that the national economy will not suffer for lack of skilled manpower.

The funds recommended for the Federal financial role in vocational and technical education are summarized on the next page.

Although this is a large sum of money, it is a reasonable amount in relation to the importance of the task, the number of persons to benefit from these programs, and the resultant contribution to the general welfare of the Nation.

Funds for Vocational Education

Proposed new legislative category	*Suggested federal funds for fiscal year 1963–64 (in millions)*	*Corresponding Federal appropriations, fiscal year 1962–63 (in millions)*	
I. High school age youth	$200	Smith-Hughes and George-Barden Acts	$24
II. Youth with special needs	10	None.	
III. Post-high-school youth and adults	50	Technician training	10
		Practical nurse training	4.5
IV. Youth and adults at work or unemployed	100	Technician training	5
		Smith-Hughes and George-Barden Acts	7.5
		Area Redevelopment Act	3
		Manpower Development and Training Act	20
		Practical nurse training	0.5
		Fishery training	0.180
V. Services to vocational and technical education	40	Administration, supervision, teacher training and guidance services under Smith-Hughes and George-Barden Acts	5

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Appendix

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Appendix

Biographical Sketches

Members of the Panel of Consultants

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HYMAN H. BOOKBINDER. Special assistant to the Secretary of Commerce, 1961–62; formerly economist, Amalgamated Clothing Workers of America; legislative representative, CIO and AFL-CIO; deputy assistant administrator, National Production Authority; director of numerous public-interest bodies, including Joint Committee on Economic Education, American Immigration Conference, U.S. Committee for Refugees, National Conference on International Economic and Social Development, and Leadership Conference on Civil Rights; educated at City College of New York, New York University, and New School for Social Research.

CHARLES F. CARROLL. Superintendent of public instruction, State department of public instruction, Raleigh, N.C.; A.B., Trinity College, Durham, N.C.; M.E., Duke University; LL.D. (honorary), High Point College; administrator in North Carolina schools since 1922; State superintendent of instruction 1952 to present; member, North Carolina Educational TV Commission, North Carolina Commission on Interstate Cooperation, National Commission on Safety Education, North Carolina Library Commission, Advisory Council for Education of Exceptional Children (Southern Regional Conference); president, Association of Public School Systems; president, Council of Chief State School Officers; director, North Carolina Art Association; director, North Carolina Educational Association; member: National Education Association, American Association of School Administrators; Phi Beta Kappa, Beta Omega Sigma, Kappa Delta Pi, Phi Delta Kappa.

FREDERICK T. CORLETO. Owner, Corleto Buick Agency, Inc., Philadelphia, Pa., since 1950; graduate, Temple University Evening School; commissioner of public property, city of Philadelphia; member of board of managers of Children's Hospital of Philadelphia; member: South Philadelphia Realty Board, Veterans Employment Committee of U.S. Employment Service, Hero Scholarship Committee of Philadelphia.

Ernest H. Dean. Industrial coordinator, Central Utah Vocational School, Provo, Utah; graduate of Brigham Young University, B.A. and M.A. in education; coordinator of industrial education at Central Utah Vocational School; State teacher trainer for Utah State Department of Public Instruction, 1961 to present time; speaker of the House of Representatives, Utah State Legislature, and cochairman, Utah Legislative Council.

Mark Ellingson. President, Rochester Institute of Technology, Rochester, N.Y., since 1936; A.B. degree, Gooding College; M.A., University of Rochester; Ph. D., Ohio State University; L.L.D., University of Rochester; instructor of economics, Rochester Institute of Technology, 1926; supervisor, photographic techniques, Rochester Institute of Technology, 1930–36; member: National Society for Study of Education, American Education Research Association, Rochester Engineering Society, Chamber of Commerce (president, 1946), Newcomen Society, American Society for Engineering Education.

Mrs. Margaret C. Ells. Scholarship counselor, American International College, Springfield, Mass.; B.S. and M.S., Boston University; honorary degrees from American International College, Springfield, and Normal School, Castleton, Vt.; teacher and administrator, Continuation School of Springfield, Mass.; teacher and administrator, Springfield Trade High School; scholarship counselor, American International College, 1955; honorary member, governing board, Women's Division, American Vocational Association; Good Neighbor Award of Springfield; Outstanding Citizen Award by Commonwealth of Massachusetts; Margaret C. Ells Elementary School dedicated in her honor, May 18, 1960, Springfield, Mass.

Charles W. Engelhard,, Jr. Chairman of the board, Engelhard Industries, Inc., Newark, N.J., 1953 to present; B.A., Princeton University; president, Engelhard Industries, Inc., chairman, Rand American Investments, Ltd., Rand Mines, Ltd.; director of Public Service Electric & Gas Co., Newark, N.J.; director, National Newark & Essex Banking Co., Newark, N.J.; founder, trustee, and vice chairman, American Museum of Immigration; director, Thomas Alva Edison Foundation; director, New Jersey State Chamber of Commerce; trustee, American Heritage Foundation; member: Foreign Policy Association, National Public Advisory Committee on Area Redevelopment, U.S. Citizens Commission on NATA; commissioner of Port of New York Authority.

Edward B. Evans. President, Prairie View College, Prairie View, Tex.; D.V.M., Iowa State College, Ames, Iowa; established Department of Veterinary Science at Prairie View A. & M. College in 1913; served as acting director of arts, science, and agriculture; acting registrar; Texas State leader of Negro Extension Services; President of Prairie View A. & M. since 1946; received Southwide Award "Man of the Year" for services to agriculture in 1953; member: American Council on Education, Committee on Southern Regional Studies, American & Texas Teachers Association, National Education Association, Texas Academy of Science, Phi Kappa Phi, Alpha Phi Alpha; president, Texas Committee on Interracial Cooperation.

Henry A. Gonzales. State supervisor of trade and industrial education, State department of education, Santa Fe, N. Mex., work equivalent to a bachelor's degree, New Mexico Highlands University; 15 years with New Mexico State Department of Education.

Francis A. Gregory. Assistant superintendent and director of vocational education, District of Columbia Public Schools; B.S., Case Institute of Technology; M.S., Massachusetts Institute of Technology; candidate for Ph. D. in education, Western Reserve University; principal of vocational high school and technical high school; assistant superintendent in charge of vocational education in the District of Columbia; served with District of Columbia public schools for past 15 years.

Floyd D. Johnson. Teacher of vocational education, York Public Schools, York, S.C.; B.S., Clemson College; graduate work, University of South Carolina; vocational agriculture teacher; member and president of National Vocational Agricultural Teachers Association; active in Future Farmers of America activities.

Helen R. LeBaron. Dean, College of Home Economics, Iowa State University; B.S., University of Vermont; M.S., Cornell University; Ph. D., University of Chicago; dietetic intern, Boston; nursing school teacher, Burlington, Vt.; home economics teacher, Enesburg, Vt.; State supervisor of home economics (Vermont); instructor and assistant professor, University of Vermont; assistant director, assistant dean of home economics, Pennsylvania State University; dean, College of Home Economics, Iowa State University (since 1952); member: National Education Association, American Association of School Administrators, American Association of University Women, Phi Delta Theta, Delta Kappa Gamma, Phi Kappa Phi.

William B. Logan. Professor of education, director of Distributive Education Institutes, the Ohio State University, Columbus, Ohio, since 1948; B.A., Furman University; M.S., University of North Carolina; Ph. D., Ohio State University; assistant professor of education, Women's College, University of North Carolina.

Charles E. Odell. Director, Retired and Older Workers Department, International Union of the United Auto Workers, Detroit, Mich.; graduate work, Syracuse University and American University; special assistant to the Under Secretary of Labor, U.S. Employment Service, Department of Labor, Washington, D.C. (since 1957).

James G. Patton. President, National Farmers Union; LL.D., Western State College of Colorado; business manager, Western State College of Colorado; general agent, Life Insurance Co. of Colorado; organizer, Cooperative Farmers Union; president, Colorado Farmers Union; member: Governor's Interim Committee on Education in Colorado, National Advisory Committee on National Youth Administration, National Labor Management Policy Commission, Advisory Board War Mobilization and Reconversion Administration, and National Advisory Board, Agricultural Marketing, U.S. Department of Agriculture (since 1940).

J. B. Perky. Director of vocational education, executive office of State board for vocational education, Stillwater, Okla.; B.S., University of Wisconsin; M.S., Colorado State University; State supervisor of vocational agriculture, Oklahoma; State director of vocational education for Oklahoma for past 29 years; Oklahoma State director of food production war training program, 1941–47; life member, American Vocational Association; past president, National Association of State Directors for Vocational Education; member, National Policy Advisory Commission for Vocational Education (1950–54);

appointed 1952 by U.S. Commissioner of Education to serve as chairman of seven-member committee to review program of entire Division of Vocational Education of the U.S. Office of Education; received Outstanding Service Award of American Vocational Association, 1954; elected to Oklahoma Hall of Fame, 1962.

THOMAS H. QUIGLEY. Professor and head, Engineering Extension Division, Industrial Education Department, Georgia Institute of Technology; B.S., Indiana University; former president of American Vocational Association.

HELEN RADKE (MRS. FRED A.). President of the board, Port Angeles Public Schools, Port Angeles, Wash.; B.A. and M.A., University of Washington; member of Phi Beta Kappa and Pi Sigma Alpha; Port Angeles School Board (1948 to present). First vice president, National School Board Association, 1962–63; board of directors, NSBA; National Citizens Council for Better Schools, 1957–59; delegate to White House Conference on Education, 1955; delegate to White House Conference on Children and Youth, 1960; member, Washington State Board for Education; Washington State Board for Vocational Education; past president, Washington State School Directors Association; president, board of directors, Peninsula College; executive board, Clallam County School Directors Association; named "Woman of the Year" by Port Angeles Chamber of Commerce, the Port Angeles Business and Professional Women, and the State Association of Business and Professional Women; past president, Port Angeles Community Forum.

PETER T. SCHOEMANN. President, United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry, Washington, D.C.; educated in Milwaukee; chairman, AFL–CIO Committee on Education; former member, Milwaukee Board of School Directors (for 21 years); served 18 years as member of Wisconsin State Board for Vocational Education; member, Milwaukee Housing Authority (for 8 years); past president of Milwaukee Building and Construction Trades Department; 1948 Cosmopolitan Award as Milwaukee's Outstanding Citizen of the Year; named by Presidents Truman and Kennedy as adviser to U.S. delegation to conferences of the International Labor Organization; currently serving on 10-member National Advisory Committee on Manpower Development and Training.

PAUL H. SHEATS. Dean, University Extension, University of California and professor of education, University of California, Los Angeles, Calif.; A.B., Heidelberg College; A.M., Columbia University; Ph. D., Yale University; past president, Adult Education Association of United States of America; and currently president, National University Extension Association.

BENJAMIN C. WILLIS. General superintendent of schools, city of Chicago, Chicago, Ill.; A.B., George Washington University, 1922; M.A., University of Maryland, 1926; Ed. D., Columbia University, 1950; LL.D. (honorary) Northwestern University, 1955; superintendent of Chicago schools since 1953; principal, elementary and secondary high schools (Maryland); superintendent of schools (Maryland); board of directors, Educational Facilities Lab., Inc. (New York); chairman, Educational Policies Commission, National Education Association; member: Chicago Association of Commerce and Industry, National Education Association (life), American Association of School Administrators, and Phi Delta Kappa.

Seymour L. Wolfbein. Deputy Assistant Secretary of Labor, U.S. Department of Labor; B.A., M.A., Ph. D., Columbia University; chief, Division of Manpower and Employment of Bureau of Labor Statistics; director of Office of Automation and Manpower; visiting professor of education, University of Michigan (summers); professor of mathematics and statistics, American University (evenings); past president, Washington Statistical Society; fellow, American Association for Advancement of Science; recipient of Alumni Award of Honor (1954), and District Service Award, U.S. Department of Labor (1955) (1961).

Dael Wolfle. Executive officer, American Association for the Advancement of Science; B.S. and M.S., University of Washington; formerly professor of psychology; executive secretary of American Psychological Association; director, Commission on Human Resources and Advanced Training; consultant, Research and Development Board, Department of Defense, Office of Naval Research, U.S. Civil Service Commission, Veterans' Administration, Department of Commerce, U.S. Office of Education, Organization for European Economic Cooperation, and President's Science Advisory Committee; honorary degrees, Drexel Institute of Technology, Ohio State University, Western Michigan University; recipient of Presidential Certificate of Merit, 1948; U.S. Air Force Exceptional Service Award, 1957.

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APPENDIX II, *Manpower in Farming and Related Occupations*, by C. E. Bishop and G. S. Tolley, OE 80025, 51 p.

APPENDIX III, *The Economic and Social Background of Vocational Education in the United States*, by Harold F. Clark; *A Sociological Analysis of Vocational Education in the United States*, by Wilbur B. Brookover and Sigmund Nosow; *The Case for Education for Home and Family Living*, by Bernice Milburn Moore; and *The Contribution to the National Economy of the Use of Resources Within and by the Family*, by Elizabeth E. Hoyt, OE 80026, 89 p.

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